EXPLANATION OF THE PLATES AND WOODCUTS.

PLATES I., II., and III.

Illustrate the memoir by Mr. Hamilton and Mr. Strickland on the Geology of the Western Part of Asia Minor: p. 1 to 39.

Plate I.

Outline Map of the Western Portion of Asia Minor, with the lines of Section given in Plate III.

Plate II.

Geological Map of the Catacecaumene.

Plate III.

Sections and Views in Asia Minor.

WOODCUTS.

Section of the horizontal Tertiary Marine Deposits of the N.E. end of the Isle of Rhodes, resting on inclined beds of blue marble: p. 14.

Section of Columnar Basalt of the first period on the north side of the Hermus: p. 28.

PLATE IV.

Illustrates Mr. Owen's paper on Fossil Remains of the *Chœropotamus*, *Palæotherium*, *Anoplotherium*, &c., from the Isle of Wight: p. 41 to 45.

Fig. 1. Right ramus of the lower jaw of the *Chœropotamus Cuvieri* from the Binstead Quarry, Isle of Wight, viewed from above.

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Fig. 1*a*. The same ramus of the lower jaw, viewed from the outer side. The figures of the crown of the canine and second false molar are given in outline from the fragment of the lower jaw described by Cuvier.

Fig. 2. Symphysis of the lower jaw of *Chæropotamus Cuvieri.*

Fig. 3. 3*a*. The right side of the upper jaw of the *Chæropotamus Cuvieri* from Montmartre, figured in the 'Ossemens Fossiles,' edit. 4, 8vo, 1835. pl. cxlix. fig. 1.

It has been deemed advisable to reproduce these figures in order to dissipate the doubts which have been expressed* as to whether this upper jaw actually belonged, as Cuvier believed, to the same animal as the fragment of the lower jaw figured by Cuvier.

Fig. 4. Grinding surface of the first upper molar, left side, of the *Anoplotherium secundarium* (Cuvier).

Fig. 5. External and internal side-view of the right upper canine of the *Anoplotherium commune,* Cuv.

Fig. 6. Grinding surface of the penultimate molar of the upper jaw of *Palæotherium medium,* Cuv.

Fig. 7. Outer and inner view of an incompletely developed crown of the penultimate molar of the lower jaw of *Palæotherium crassum,* Cuv.

PLATES V. and VI.

Illustrate Mr. Owen's memoir on the *Thylacotherium* and *Phascolotherium*: p. 47 to 65.

Plate V.

Fig. 1. Inside view of the left ramus of the lower jaw of the *Thylacotherium Prevostii,* Val.

The outline figure represents the jaw of the natural size.

Fig. 2. The corresponding view of the left ramus of the lower jaw of the *Myrmecobius fasciatus,* Waterhouse.

The outline figure represents the jaw of the natural size.

Fig. 3. Inside view of the left ramus of the lower jaw of the *Thylacotherium Prevostii,* Val.

The outline figure represents the jaw of the natural size.

It is the original Stonesfield fossil examined by Cuvier, and figured by M. Prevost, 'Annales des Sciences Nat.,' Avril 1825, pl. xviii., and by Dr. Buckland, 'Bridgewater Treatise,' ii. pl. ii. fig. B.

In each figure *a* indicates the condyle or condyloid process; *b*, the coronoid process; *c*, the angle or angular process; *d*, the inferior longitudinal groove; *e*, the symphysis of the jaw.

Plate VI.

Fig. 1. Inside view of the left ramus of the lower jaw of the *Thylacotherium Broderipii.*

The outline figure represents the jaw of the natural size.

* See the 'Palæologicæ' of H. von Meyer, p. 53.

This figure is taken from the specimen presented by the Rev. H. Sykes to the Museum of the Philosophical Institution of York, where it is now preserved. The opportunity of describing and figuring this interesting specimen was afforded me, subsequently to the communication of the papers on the *Thylacotherium Prevostii* and *Phascolotherium Bucklandi* (pp. 45 and 57), by my friend Prof. Phillips, to whom I beg to return my best acknowledgments. This specimen, which, like the others, is from the oolitic slate of Stonesfield, is more perfect in regard to the teeth than either of the above-described jaws of the smaller species of *Thylacotherium*. That it belongs to this genus is proved by the number of teeth, and there is a close correspondence in the form of the jaw; but the difference of size is greater than has been observed in mature individuals of the same species of Placental or Marsupial Insectivores. I therefore indicate the species which this fossil represents under the name of *Thylacotherium Broderipii*, in honour of the geologist and naturalist to whom we are indebted for the first description and figure of the Stonesfield mammiferous remains.

In this, as in the two preceding instances, it is the left ramus of the lower jaw which offers its inner surface to the observer: it presents at its anterior part the sockets of three incisors and one canine, of small and nearly equal size, each having a simple fang; then follow the empty sockets of three small false molars, each with two fangs; to these succeed three large false molars, in place, each having two fangs protruded to a certain extent from their sockets, and fixed by the adherent matrix in that position, which proves that they were not anchylosed to the osseous substance: these teeth became loosened and displaced doubtless after decomposition of the soft parts; and the anterior teeth, which are missing, were probably lost from the same cause, before the jaw was finally encased in the oolite. There is a small anterior as well as posterior tubercle at the base of the large middle cusp or cone, in each of the three premolars which are in place: the middle cusp of the posterior one is fractured: there is a slight ridge along the inner side of its base in that tooth, indicating the transition to the true molar series. The first true molar is wanting; the next four present the inner surface of their crowns in a perfect and uninjured state: the large middle cusp has a smaller one at the anterior and posterior part of its base; this is traversed by a strong ridge along the inner side, which supports three small cusps; one of these rises at the middle of the base of the large external cusp, and the other two form the anterior and posterior extremities of the crown of the tooth. This form of grinder resembles that of the *Phascolotherium*, except in the presence of the middle internal cusp, more than that of the molars of the true *Didelphys*. The condyloid and coronoid processes have both left their impressions on the matrix: the angle of the jaw is fractured: there is the same shallow, wide and smooth groove near the lower margin of the jaw, and the same notch in the symphysis.

Fig. 2. Inside view of the right ramus of the lower jaw of *Phascolotherium Bucklandi*; from the specimen in the British Museum. *Didelphys Bucklandi*: Broderip, 'Zoological Journal,' vol. iii. p. 408, pl. xi.; Buckland's 'Bridgewater Treatise,' pl. ii. A.

The outline figure represents the jaw of the natural size.

In both the figures *a* indicates the condyle; *b*, the coronoid process; *c*, the angular process of the jaw; *d*, the inferior longitudinal groove.

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PLATES VII., VIII. and IX.

Illustrate Mr. Owen's memoir on *Zeuglodon cetoides*: p. 69 to 79.

Plate VII.

A fragment of the upper jaw of the *Zeuglodon cetoides*, showing three of the complex two-fanged molars *in situ*, and part of the alveolus of a fourth: the form and depth of implantation of the fang is shown at the fractured surface, at the opposite extremity of the fragment.

Plate VIII.

Fig. 1. A transverse horizontal section of the middle of the crown of one of the double-fanged molars of the Zeuglodon.

Fig. 2. A similar section through both fangs of the same molar, taken two inches below the preceding.

Fig. 3. A similar section of the crown of the posterior molar of the Dugong.

Fig. 4. Ditto, ditto, of an anterior molar of the Manatee.

Fig. 5. A transverse section of one of the ribs of the Zeuglodon, showing the form of its principal component layers.

Fig. 6. A caudal vertebra of the Zeuglodon, on the scale of six inches to a foot.

Plate IX.

Two views of the humerus of the Zeuglodon, on the scale of six inches to a foot.

PLATES X., XI., XII. and XIII.

Illustrate Mr. Owen's paper on *Glyptodon clavipes*: p. 81 to 106.

Plate X.

Generic characters of the *Glyptodon*:

Fig. 1. Side-view of a molar tooth: p. 86.

Fig. 2. Grinding surface of ditto (both of the natural size).

Fig. 3. Outside view of the left hind-foot, wanting the small external and internal toes (two-thirds natural size).

as. Astragalus: p. 90.

c. Calcaneum: p. 91.

sc. Scaphoides: p. 92.

cn. External cuneiform bone: p. 92.

cb. Cuboides: p. 93.
m. Metatarsals: p. 93.
1. First or proximal phalanx: p. 94.
2. Second or middle phalanx: p. 94.
3. Third, distal, or unguial phalanx: p. 95.

PLATE XI.

Figs. 1 and 2. Os scaphoides (two-thirds natural size).
a, Articular surface for the astragalus.
b, Descending process.
c, Articular surface for the external cuneiform.
d, Ditto, ditto, middle cuneiform.
e, Ditto, ditto, internal cuneiform.
Figs. 3 to 5. Astragalus (two-thirds natural size): p. 90.
a, Articular surface for the scaphoides: p. 91.
b and *c*, Articular surfaces for the calcaneum.
Fig. 6. Os cuboides (two-thirds natural size).

PLATE XII.

Fig. 1. The three phalangeal bones of the second toe.
Fig. 2. Distal articular surface of the proximal phalanx of the same toe.
Fig. 3. Ditto, second phalanx of ditto.
Fig. 4. Distal articular surface of the middle phalanx of the third toe.
Fig. 5. Proximal articular surface of the unguial phalanx of the second toe.
Fig. 6. Under surface of the unguial phalanx of the third toe.
(All the above bones are parts of the left hind-foot, and are represented of the natural size.)

PLATE XIII.

Fig. 1. Modifications of the pelvis and spine of the *Dasypus tricinctus*, in relation to the support of the bony dermal covering (natural size): p. 98.
a, Spinous process of the lumbar vertebra.
b, Transverse process of ditto.
c c, Sacrum.
d, Ilium.
e, Ischium.
f, Pubis.
g, Acetabulum.

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Fig. 2. A lumbar vertebra of the same species of Armadillo, with the contour of the part of the carapace which it supports (natural size) : p. 100.

a, Spinous process.

b b, Transverse processes.

Fig. 3. A corresponding lumbar vertebra of the Megatherium (one-fourth natural size) : p. 101.

a, Spinous process.

b b, Transverse processes.

Fig. 4. Upper surface of the calcaneum : p. 91.

Fig. 5. Anterior surface of ditto (two-thirds natural size) : p. 91.

PLATES XIV. and XV.

Map and Sections to illustrate Mr. Sharpe's memoir on the Geology of the neighbourhood of Lisbon : p. 107 to 133.

PLATE XVI.

Fossil Shells from the modern Deposits near Quebec; to illustrate Mr. Lyell's Memoir on some Fossil and Recent Shells collected by Captain Bayfield, R.N., in Canada : p. 135 to 151. For a list of the shells figured, see p. 151.

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Section in Bornholm to illustrate Dr. Forchhammer's account of changes which have taken place in Denmark during the present period : p. 157 to 160.

WOODCUTS

To illustrate Mr. Bowerbank's paper on the London and Plastic Clay Formations of the Isle of Wight : p. 170.

Section of White Cliff Bay : p. 171.

Section in Alum Bay, copied from Mr. Webster's drawing, vol. ii. first series : p. 172.

PLATE XVII.

Illustrates Mr. Hawkshaw's description of the Fossil Trees found at Dixon Fold on the line of the Manchester and Bolton Railway : p. 173 to 176.

Figs. 1 to 5. Are reduced from drawings made under Mr. Hawkshaw's inspection, and repre-

sent the relative position of the trees with respect to the horizontal level, but not the proportional distance of the different trees.

Fig. 6. Section of the strata overlying the trees.

PLATES XVIII. and XIX.

Illustrate Mr. Bowerbank's paper on the Siliceous Bodies of the Chalk, Greensands and Oolites: p. 181 to 194.

Plate XVIII.

Chalk Flints.

Fig. 1. A view of part of a section of a nodular chalk flint from Gravesend, Kent, exhibiting the spongeous tissue in its most perfect form, seen as an opaque object with a leiberkuhn and a power of 120 linear.

Fig. 2. Represents the minute tubular sponge-fibres on the surface of a flint-cast of a Galerite, at the depression opposite the marginal orifice of the base of the shell, seen as an opaque object by direct light with a power of 120 linear.

Fig. 3. Spicula on the interior surface of a Wiltshire chalk flint, seen as an opaque object by direct light with a power of 35 linear.

Fig. 4. Some of the largest of the spicula from the interior of a chalk-flint from Wiltshire, which contained several species of sponges and corals, seen as opaque objects by direct light with a power of 35 linear.

Plate XIX.

Greensand Cherts.

Fig. 1. Sponge-fibres and spicula in the Upper Greensand Chert from Fovant, Wilts, viewed as an opaque object with a leiberkuhn and power of 50 linear.

Fig. 2. Sponge-fibres in the Greensand Chert from Lyme Regis, Dorsetshire, viewed as an opaque object with a leiberkuhn and power of 50 linear.

Fig. 3. A fibre in the specimen from which fig. 3 was drawn, seen as a transparent object with a power of 50 linear, exhibiting the flocculent appearance of the surface of the tissue when viewed by transmitted light.

WOODCUT.

Section to illustrate Mr. Bowman's notes on a patch of Silurian rocks on the northern coast of Denbighshire: p. 195.

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PLATE XX.

Illustrates Mr. Owen's memoir on some of the soft parts of the Hind-Fin of the *Ichthyosaurus*, indicating the shape of the fin when recent: p. 199.

PLATE XXI.

Illustrates Mr. Owen's paper on the *Hyracotherium leporinum* (p. 203–206) and *Lithornis vulturinus* (p. 206–208). For descriptions of the figures, see pp. 206 and 208.

PLATE XXII.

Illustrates Mr. Owen's account of some Ophidiolites (*Palæophis toliapicus*) from the London Clay: p. 209.

Fig. 1. A group of vertebræ and ribs of the *Palæophis toliapicus*, from the London Clay, Sheppey: in the Hunterian Museum.

Fig. 2. A chain of vertebræ thirteen inches and a half in length, of the same species, from the same formation and locality: in the museum of Mr. Bowerbank.

Fig. 3. A group of six vertebræ, of the same species, from the same formation and locality: in the museum of Mr. Bowerbank.

Fig. 4. Side-view of a vertebra of the *Palæophis toliapicus*.

Fig. 4*a*. Side-view of a corresponding vertebra of the *Python tigris*, from a specimen nine feet in length.

Fig. 5. Anterior view of a vertebra of the *Palæophis toliapicus*.

Fig. 5*a*. Anterior view of a corresponding vertebra of the *Python tigris*.

Fig. 6. Under view of the vertebra of the *Palæophis toliapicus*.

The same letters indicate the same parts in each figure.

a. The concave anterior articular surface of the body of the vertebra.

b. The convex posterior articular surface.

c. The articular tubercle for the head of the rib.

d. The anterior articular surfaces of the oblique and transverse processes forming the 'tenon' joint, in which the 'mortise' *e* at the posterior part of the neurapophysis is infixed.

e. The spinous process.

All the figures are of the natural size.

WOODCUTS

To illustrate Mr. Buddle's paper on the Great Fault, called the Horse, in the Forest of Dean: p. 215.

Section of the drift through the Horse Fault and of the beds on each side of it: p. 216.

Plan of the Horse Fault and of the irregularities in the surface of the coal-seam on each side of the Fault: p. 217.