CATALOGUE

OF THE

GOVERNMENT CENTRAL MUSEUM,

MADRAS.

ARRANGED AND COMPILED

BY

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B. PALÆONTOLOGY--Part II.

BY ORDER OF THE GOVERNMENT

OF

MADRAS.

MADRAS:
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1855.

I am indebted to Professor MORRIS, Professor of Geology University of London, for the greatest part of these specimens.

PALÆONTOLOGY gives us an account of the remains of organic bodies, contained in, and associated with the inorganic materials of which the surface of the earth is composed, and it is of such organic remains as are in the Museum and of the rocks in which they are found that I have endeavoured, in the following pages, to construct a catalogue. In making this catalogue of the Aqueous Rocks and of the animal and vegetable remains which are found in them, the whole have been arranged Chronologically with reference to the successive geological periods when they originated. These remains are termed fossils by which is meant a body, or the traces of the existence of any body, whether animal or vegetable, which has been buried in the earth by natural causes. It is in the Aqueous Rocks that fossils chiefly occur for which reason this class of rocks are often called fossiliferous though the term sedimentary is likewise given from the circumstance of their having been deposited from water. These rocks are stratified or divided into distinct layers or strata, for *stratum* simply means a bed or any thing spread out or *strewed* over a given surface. Looking to the whole history of former life it is now almost every where acknowledged that during the formation of the sediments which compose the crust of the earth, the mineral kingdom has been at least three times entirely renovated. This has led to the whole of these strata being grouped into three great classes called the primary, secondary and tertiary, representing three periods of time, the secondary and tertiary periods being each as clearly characterised by a distinct fauna as the primeval series. Under this view the number of classes into which the fossiliferous strata may be separated are three,—but the groups may be more or less numerous according to the views of classification which different geologists entertain. The German, French and English geologists, however, who have determined the succession of strata throughout the greater part of Europe have pretty generally adopted the following arrangement of the groups of the fossiliferous strata which have been observed in Western Europe and almost all of which have their representatives in the British Isles.

TABLE I.

Showing the Nineteen Subordinate Groups of Fossiliferous Strata observed in Western Europe, arranged under three principal Sections in what is termed a descending Series or beginning with the newest.

Tertiary, Supracretaceous*, or Cainozoic.†	Secondary or Mesozoic.†	Primary fossiliferous, or paleozoic.†
1 Post Pliocene, including those of the Recent, or human period.	6 Chalk.	14 Permian.
2 Newer Pliocene, or Pleistocene.	7 Greensand.	15 Coal.
3 Older Pliocene.	8 Wealden.	16 Old Red Sandstone or Devonian.
4 Miocene.	9 Upper Oolite.	17 Upper Silurian.
5 Eocene.	10 Middle Oolite.	18 Lower Silurian.
	11 Lower Oolite.	19 Cambrian and older fossiliferous strata.
	12 Lias.	
	13 Trias.	

It is not pretended that the three principal sections in the above table, No. I, called primary, secondary, and tertiary, are of equivalent importance or that the nineteen subordinate groups comprise monuments relating to equal portions of past time or of the earth's history. But it can be asserted that they each relate to successive periods during which certain animals and plants, for the most part peculiar to their respective eras, have flourished, and during which different kinds of sediment have been deposited in the space now occupied by Europe. If disposed on palæontological grounds‡ to divide the entire fossiliferous series into a few groups less numerous than those in the above table, and more nearly coordinate in value than the sections called primary, secondary and tertiary, SIR CHARLES LYELL considers that the six groups or periods given in the next table might be adopted.

TABLE II.

Showing the Fossiliferous Strata of Western Europe divided into six Sections.

1 Post Pliocene and Tertiary..	from the Post Pliocene to the Eocene inclusive.
2 Cretaceous....................	from the Maestricht chalk to the Lower Greensand inclusive.
3 Oolitic..........................	from the Wealden to the Lias inclusive.
4 Triassic..........................	including the Keuper, Muschelkalk, and Buster Sandstein of the Germans.
5 Permian, Carboniferous, and Devonian...............	including Magnesian Limestone (Zechstein,) Coal, Mountain Limestone and Old Red sandstone.
6 Silurian and Cambrian... ...	from the Upper Silurian to the oldest fossiliferous rocks inclusive.

* For tertiary Sir H. De la Beche has used the term Supracretaceous, a name implying that the strata so called are superior in position to the chalk.

† Professor Phillips has adopted these terms, Cainozoic, from *Cainos*, recent, and *Zoon*, animal. Mesozoic, from *mesos*, middle &c; paleozoic, from *palaios*, ancient, &c.

‡ Palæontology is the science which treats of fossil remains both animal and vegetable. Its derivation being from *palaios*, ancient, *onta*, beings, and *logos*, a discourse.

GLOSSARY OF TERMS, ADOPTED INTO GEOLOGY FROM THE LATIN AND GREEK.

1 CAINOZIC,........from *cainos*, recent, and *zoon*, animal.

2 CAMBRIAN,......is a geological name suggested by Professor Sedgwick to designate part of the Silurian series of North Wales.

3 DEVONIAN,......because that class of rocks are greatly developed in Devonshire.

4 EOCENE,....... from *eos*, dawn and *cainos*, recent, implying that these fossils and rocks mark the dawn or commencement of the life in the Tertiary period.

5 LIAS,............A provincial appellation, now generally adopted to designate the clayey limestone occurring between the upper new red sandstone and the oolite.

6 MIOCENE........from *meion*, less, and *cainos*, recent, implying that they are less recent than the Eocene.

7 OOLITE,..........from oolos, egg, a limestone composed of rounded particles like the roe of a fish.

8 PALEOZOIC,......from *palaios*, ancient, and *zoon*, life, implying those animals and vegetables that were most remotely formed.

9 PERMIAN,........because this class of rocks are greatly developed in the Russian territory of Perm.

10 POST,............after or subsequent to,—

11 PLIOCENE,.........from *pleion*, more, and *cainos*, recent.

12 PRIMARY,........from *primus*, first, implying that this class comprise the primeval formed rocks.

13 SECONDARY,.....from *secundus*, second, implying second formed.

14 SILURIAN,.......because these rocks were first examined in a part of Britain wherein an ancient people, termed the Silures, had opposed a valorous resistance to the Romans.

15 SUPRACRETACEOUS.from *supra*, above, and *creta*, chalk.

16 TERTIARY,.. ....from *tertius*, third, because third formed.

17 TRIAS,..........the name given on the continent to the beds of new red sandstone.

18 WEALDEN,......from the circumstance that these rocks occur in the Weald of Sussex.

INDEX.

PART II.

DESCRIPTIVE GEOLOGY.

AQUEOUS ROCKS.

POST TERTIARY.

A. POST PLIOCENE GROUP.

Periods and Groups.	*Examples.*	*Observations.*
1. Recent..........	Peat mosses and shell-marl, with bones of land animals, human remains and works of art......................... Newer parts of modern deltas and coral reefs.............	All the imbedded shells, freshwater, and marine, of living species, with occasional human remains and works of art.
2. Post Pliocene....	Clay, marl, and volcanic tuff of Ischia, p. 113................................. Loess of the Rhine, p. 117.............. Newer part of boulder formation, with erratics, p. 148...........	All the shells of living species. No human remains or works of art. Bones of quadrupeds, partly of extinct species.

NONE.

I. TERTIARY.

B. PLIOCENE GROUP.

Periods and Groups.	*Examples.*	*Observations.*
3. Newer Pliocene or Pleistocene.	Boulder formation or drift of northern Europe and North America, chaps. 11 and 12............................. Cavern deposits and osseous breccias. p. 153................................. Fluvio-marine crag of Norwich, p. 148.. Limestone of Girgenti, in Sicily, p. 152.	Three-fourths of the fossil shells of existing species. A majority of the mammalia extinct but the genera corresponding with those now surviving in the same great geographical and zoological province, p. 157. During part of this period icebergs frequent in the seas of the northern hemisphere, and glaciers on hills of moderate height.

No.

1. Aporrhais pes-pelicani. Pliocene, *Norfolk.*
2. Astarte borealis. Pliocene, *Sweden.*
3. Nucula. Pliocene, *Portland, Maine.*
4. Nucula Portlandica. Pliocene, *Portland, Maine.*
5. Sanguinolaria fusca. Pliocene, *Portland, Maine.*
6. Unio pictorum, Mammalian Deposits, *Valley of Thames.*
7. Venus Chione. Pliocene, *Astigiani.*

4. Older Pliocene..	Red and Coralline crag of Suffolk, p. 162.................................. Subapennine beds, 166..................	A third or more of the species of Mollusca extinct. Nearly, if not all, the mammalia extinct.

8. Fusus contrarius, Crag, *Suffolk.*
9. Fusus scalariformis, Pliocene, *Sweden.*

C. MIOCENE GROUP.

Periods and Groups.	*Examples.*	*Observations.*
5. Miocene.........	Faluns of Touraine, p. 168.............. Part of Bourdeaux beds, p. 171........ Part of Molasse of Switzerland, p. 171..	About two-thirds of the species of shells extinct. The recent species of shells often not found in the adjoining seas, but in warmer latitudes. All the mammalia extinct.

No.

1. CANCELLARIA ACUTANGULA? MIOCENE, *Bourdeaux.*
2. CYRENA SUBURATA. MIOCENE.
3. CYTHEREA. MIOCENE, *Bourdeaux.*
4. FUSUS BURDIGALENSIS. MIOCENE. *Bourdeaux.*
5. NATICA VARIABILIS. MIOCENE.
6. PECTUNCULUS. MIOCENE, *Bourdeaux.*
7. SPONDYLUS. MIOCENE, *Astigiani.*
8. STROMBUS ITALICUS. BONELLI. MIOCENE? *Montapa.*
9. TURRITELLA TEREBRATIS. MIOCENE, *Bourdeaux.*

D. EOCENE GROUP.

Periods and Groups.	*Examples.*	*Observations.*
6. Upper Eocene...	Upper marine of Paris basin, Fontainebleau sandstone, p. 175............... Upper freshwater and millstone of same. Kleyn Spawen beds, p. 176............ Hermsdorf tile-clay, near Berlin.. .... Mayence tertiary strata, p. 177 .... Freshwater beds of Limagne d' Auvervne, p. 181..............	Fossil shells of the Eocene period, with very few exceptions, extinct. Those which are identified with living species rarely belong to neighbouring regions. All the mammalia of extinct species, and the greater part of them of extinct genera. Plants of Upper Eocene, indicating a south European or Mediterranean climate; those of Lower Eocene, a tropical climate.

1. TERTIARY LIMESTONE. *Brunn* near *Vienna.*
2. CALYPTRŒA TROCHIFORME. EOCENE, *Southampton.*
3. CARDITA ACUTICOSTA. EOCENE, *Paris.*
4. CASSIDULUS.? EOCENE, *Normandy.*
5. FUSUS BULBIFORMIS. EOCENE, *Paris basin.*
6. HELIX VECTENSIS. UPPER EOCENE, *Isle of Wight.*
7. HIPPOTHERIUM GRACILE. TEETH OF: *Eppelsheim* near *Mayence.*

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7. Middle Eocene..	Paris gypsum with Paleotherium, &c. p. 191................................. Freshwater and fluvio-marine beds, of Headen Hill, Isle of Wight, p. 197... Barton beds, Hants, p. 198.... .... Calcaire Grossier, Paris, p. 193........ Bagshot and Bracklesham beds, Surrey and Sussex, p. 198......	Fossil shells of the Eocene period, with very few exceptions, extinct. Those which are identified with living species rarely belong to neighbouring regions. All the mammalia of extinct species, and the greater part of them of extinct genera. Plants of Upper Eocene, indicating a south European or Mediterranean climate; those of Lower Eocene, a tropical climate.

8. ACTÆON SIMULUTUS. EOCENE, *Barton.*

No.

9. ANOMIA STRIATA. EOCENE, *Bracklesham.*
10. BALANUS ERISMA. EOCENE, *Isle of Wight.*
11. BUCCINUM CANALICULATUM (FUSUS,) EOCENE, *Barton.*
12. BULIMUS ELLIPTICUS. EOCENE, *Isle of Wight.*
13. CALYPTREA TROCHIFORME. EOCENE, *Barton.*
14. CHAMA SQUAMOSA. EOCENE, *Barton.*
15. CANCER TUBERCULATUS. EOCENE, *Isle of Wight.*
16. CANCELLARIA. EOCENE, *Isle of Wight.*
17. CARDIUM SEMI-GRANULOSUM. EOCENE, *Bracklesham-bay.*
18. CERITHIUM CINCTUM. EOCENE, Upper marine, *Headon-hill, Isle of Wight.*
19. CERITHIUM CONCAVUM. EOCENE, Upper freshwater, East end of *Colwell-bay, Isle of Wight.*
20. CERITHIUM MARGARITACEUM. EOCENE, Upper marine, *Colwell-bay, Isle of Wight.*
21. CORBULA LONGIROSTRUM. EOCENE, *Barton.*
22. CASSIDARIA STRIATA. EOCENE, *Barton.*
23. CRAB.
24. CRAB, FOSSIL. *Sheppey.*
25. CRAB. *Sheppey.*
26. CRAB, *Sheppey.*
27. CRAB, *Sheppey.*
28. CYCLOTUS CINCTUS. EOCENE, *Isle of Wight.*
29. CYRENA OBOVATA. EOCENE, *Isle of Wight.*
30. CYTHEREA INCRASSATA. MIDDLE EOCENE, *Isle of Wight.*
31. EUOMPHALUS DISCUS. UPPER EOCENE, *Isle of Wight.*
32. FRESHWATER LIMESTONE, *Isle of Wight.*
33. FUSUS ACICULATUS. EOCENE, *Barton.*
34. FUSUS LABIATUS. EOCENE, Upper marine, *Colwell-bay, Isle of Wight.*
35. FUSUS LONGŒVUS (VERMIIA CRASSA), London Clay, *Barton.*
36. FUSUS MACILENTUS. EOCENE, *Barton.*
37. FUSUS REGULARIS. SOW : EOCENE, *Barton.*
38. FUSUS ROSTRATUS. EOCENE, *Barton.*
39. LIMNEA GLOBOSULA. EOCENE, *Isle of Wight.*
40. LIMNEA LONGISCATA. EOCENE, *Isle of Wight.*
41. LIMNEA PYRAMIDALIS. EOCENE, *Isle of Wight.*
42. MELANIA LACTEA. EOCENE.
43. MELANOPSIS CARINATUS. EOCENE, *Isle of Wight.*
44. MELANOPSIS FUSIFORMIS. EOCENE, Upper marine, *Headon-hill, Isle of Wight.*

No.

45. NATICA MUTABILIS. EOCENE, Upper marine, *Colwell-bay, Isle of Wight.*
46. NEMATURA PYGMEA. EOCENE, *Isle of Wight.*
47. NEMATURA NERITINA. MIDDLE EOCENE, *Isle of Wight.*
48. NERITINA CONCAVA. EOCENE, *Isle of Wight.*
49. NUCULA DESHAYESII. EOCENE, *Belgium.*
50. NUMMULITES LAVIGATA. EOCENE, *Belgium.*
51. OSTREA. MIDDLE EOCENE, *Colwell-bay, Isle of Wight.*
52. OSTREA TENER. EOCENE, *Isle of Wight.*
53. OLIVA BRANDERI. EOCENE, *Barton.*
54. PALUDINA LENTA. EOCENE, *Colwell bay, Isle of Wight.*
55. PALUDINA THERMALIS. Freshwater Limestone, *Hochst* near *Frankfort.*
56. PHOLADOMYA MARGARITACEA. EOCENE, *Isle of Wight.*
57. PHOLADOMYA MARGARITACEA, London Clay, *Isle of Wight.*
58. PLANORBIS EUOMPHALUS. EOCENE, *Isle of Wight.*
59. PLANORBIS ROTUNDATUS. EOCENE, *Isle of Wight.*
60. PLANORBIS ROTUNDATUS. EOCENE, *Isle of Wight.*
61. PLEUROTOMA ATTENUATA. EOCENE, *Bracklesham.*
62. PLEUROTOMA FILOSA. EOCENE.
63. POTAMIDES. EOCENE, *Isle of Wight.*
64. POTAMIDES MURICATUS. EOCENE, Upper Marine, *Headon-hill, Isle of Wight.*
65. POTAMIDES VENTRICOSUS. SOW: EOCENE. Upper Marine. *Headon-hill. Isle of Wight.*
66. POTAMOMYA PLANA. EOCENE, *Isle of Wight.*
67. PSAMMOBIA COMPRESSA? EOCENE, *Isle of Wight.*
68. PSAMMOBIA RUGOSA. EOCENE. *Isle of Wight.*
69. PSAMMOBIA RUDIS. SOW: MIDDLE EOCENE, *Isle of Wight.*
70. ROSTELLARIA FISSINELLA. EOCENE.
71. ROSTELLARIA RIMOSA. EOCENE, *Barton.*
72. SANGUINOLARIA HOLLOWAYSII EOCENE, *Bracklesham.*
73. SERAPHS CONVOLUTUS. SOW: EOCENE, *Barton.*
74. STROMBUS BARTONENSIS. EOCENE, *Barton.*
75. TRITON ARGUTUS. SOW: EOCENE, *Barton.*
76. TRITON FLANDRICUM. EOCENE, *Belgium.*
77. TROCHUS MONILIFER. EOCENE, *Barton.*
78. TURRITELLA IMBRICATANA. EOCENE, *Isle of Wight.*
79. TURRITELLA TEREBELLA. EOCENE, *Bracklesham Bay.*
80. UNIO SOLANDRI. EOCENE, *Isle of Wight.*
81. VOLUTA AMBIGUA. EOCENE, *Barton.*

No.

82. VOLUTA LUCTATOR. EOCENE, *Barton.*

83. VOLUTA LIMA. EOCENE, *Barton.*

84. VOLUTA SPINOSA. EOCENE.

85. VENERICARDIA (CARDITA) GLOBOSA. EOCENE, *Barton.*

86. VENUS TENUISTRIATA. EOCENE, *Barton.*

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8. Lower Eocene..	London clay proper of Highgate Hill and Sheppey,—Bognor beds, Sussex, p. 200.. Sables inferieurs, and lits coquilliers of Paris basin, p. 196................ Mottled and plastic clays and sands of the Hampshire and London basins, p. 203.. Sables inferieurs, and argiles plastiques of Paris basin, p. 196............ Nummulitic formation of the Alps, p. 205..	Fossil shells of the Eocene period, with very few exceptions, extinct. Those which are identified with living species rarely belong to neighbouring regions. All the mammalia of extinct species, and the greater part of them of extinct genera. Plants of Upper Eocene, indicating a south European or Mediterranean climate; those of Lower Eocene, a tropical climate.

87. CASSIDARIA CARINATA. EOCENE, *Highgate.*

88. CERITHIUM. Plastic clay, LOWER EOCENE, *France.*

89. CYRENA CUNEIFORMIS. EOCENE, *Woolwich.*

90. FOSSIL RESIN. EOCENE, *Highgate.*

91. FUSUS. EOCENE, *Highgate.*

92. MELANIA INQUINATA. EOCENE, Plastic clay, *Woolwich.*

93. MELANOPSIS BUCCINOIDES. CYRENA TELLINELLA. COTTON. Plastic clay, *Woolwich.*

94. MODIOLA ELEGANS. EOCENE, *Highgate.*

95. MUREX ASPER. EOCENE. *Highgate.*

96. NAUTILUS CENTRALIS. EOCENE. *Highgate.*

97. NAUTILUS REGALIS. London clay, *Highgate.*

98. NUMMULITES LEVIGATA. EOCENE. *France.*

99. OTODUS OBLIQUUS (tooth of), London clay, *Sheppey.*

100. OSTREA PULCHRA. LOWER EOCENE, Plastic clay, *Woolwich, Kent.*

101. PECTUNCULUS BREVIROSTRUM. EOCENE, *Bognor.*

102. PETROPHYLLOIDES RICHARDSONI. EOCENE, *Kent.*

103. ROSTELLARIA MACROPTERA. London clay, *Kingston.*

104. TEREDO ANTENAUTA. SOW: EOCENE, *Highgate.*

105. THRACIA OBLATA. EOCENE, *Herne Bay.*

106. PINNA AFFINIS. SOW: EOCENE, London clay, *Bognor.*

107. VERMETUS BOGNORIENSIS. London clay, *Bognor.*

108. VOLUTA NODOSA. EOCENE, *Highgate.*

109. VOLUTA WETHERELLII (rare). EOCENE, *Highgate.*

AQUEOUS ROCKS.

II. SECONDARY.

E. CRETACEOUS.

§ UPPER CRETACEOUS.

Periods and Groups.	*Examples.*	*Observations.*
9 Mæstricht beds..	Yellowish white limestone of Maestricht, p. 209; Coralline limestone of Faxœ, Denmark, p. 210	Ammonite, Baculite, and Belemnite, associated with Cypræa, Oliva, Mitra, Trochus &c. Large marine saurians.
10 Upper White Chalk.......	White chalk with flints of North and South Downs,—Surrey and Sussex, p. 211	Marine limestone formed in part of decomposed corals.
11 Lower White Chalk........	Chalk without flints, and chalk marl, ibid	
12 Upper Greensand	Loose sand, with bright green particles, ibid; Firestone of Merstham, Kent, p. 218....; Marlystone, with layers of chert, south of Isle of Wight	
13 Gault........	Dark blue marl at base of chalk escarpment,—Kent and Sussex, p. 218......	Numerous extinct genera of conchiferous cephalopoda Hamite, Scaphite, Ammonite, &c.

§§ LOWER CRETACEOUS.

14 Lower Greensand	Sand with green matter,—Weald of Kent of Sussex, p. 219; White, yellowish, and ferruginous sand, with concretions of limestone and chert,—Atherfield, Isle of Wight....; Limestone called Kentish Red........	Species of shells &c. nearly all distinct from those of Upper Cretaceous; most of the genera the same.

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9 Mæstricht beds..	Yellowish white limestone of Mæstricht, p. 209; Coralline limestone of Faxœ, Denmark, p. 210	Ammonite, Baculite, and Belemnite, associated with Cypræa, Oliva Mitra, Trochus &c. Large marine saurians.

No.

1. **DITRUPA.** Chalk, *Mæstricht.*
2. **OSTREA.** Chalk, *Mæstricht.*
3. **PAGURUS FAUJASII, DESMAREST.** Chalk marl, (*Hanover*) and *Mæstricht.*

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10 Upper White Chalk........	White chalk with flints of North and South Downs.—Surrey and Sussex, p. 211	Marine limestone formed in part of decomposed corals.

4. **ANANCHYTES OVATUS.** Chalk, *Kent.*
5. **ANANCHYTES OVATUS.** Upper Chalk, *Kent.*
6. **BACULITES FAUJASII.** Upper Chalk, *Normandy.*
7. **BELEMNITES MUCRONATUS.** Upper Chalk, *Norfolk.*
8. **CIDARIS CLAVIGERA.** Chalk, *Bromley,*
9. **CIDARIS VESICULOSA.** Upper Chalk, *Kent.*

No.

10. CIDARIS VESICULOSA. Upper Chalk, *Kent.*
11. CIDARIS VESICULOSA. Chalk, *Kent.*
12. CONULUS VULGARIS. Chalk, *Kent.*
13. CONULUS SUBROTUNDUS. Chalk, *Kent.*
14. CONULUS SUBROTUNDUS. Upper Chalk, *Kent.*
15. CYPHOSOMA MILLERI. Upper Chalk, *Kent.*
16. HOLASTER PILULA. Chalk, *Sussex.*
17. INOCERAMUS BRONGNIARTII. Chalk, *Sussex.*
18. INOCERAMUS CUVIERI. Upper Chalk, *Kent.*
19. INOCERAMUS. Chalk, *Kent.*
20. MILLEPORA CORYMBOSA. *Caen.*
21. MILLEPORA GLOBULARIS. Chalk, *Kent.*
22. MICRASTER COR-ANGUINUM. Chalk, *Kent.*
23. MICRASTER ROSTRATUS VAR: OF S. COR-ANGUINUM. Chalk, *Kent.*
24. OSTREA SEMIPLANA. Chalk, *Norfolk.*
25. PECTEN 5 COSTATUS. Upper Chalk, *Kent.*
26. PECTEN MEMBRANACEUS, Niln, Mont. ST. PIERRE, (rare) terre crétace.
27. PTYCHODUS LATIOR OR ALTIOR. Chalk, *Kent.*
28. SERPULA MACROPUS. Chalk, *Kent.*
29. SERPULA. CIPLY near Mons, Chalk.
30. SERPULA. CIPLY near Mons, Chalk.
31. SPONDYLUS SPINOSUS. Upper Chalk. *Sussex.*
32. SPONDYLUS SPINOSUS (PLAGIOSTOMA). Upper Chalk.
33. SPONDYLUS. Upper Chalk.
34. SPONDYLUS. Upper Chalk.
35. TEREBRATULA CARNEA. SOW: Upper Chalk, *Kent.*
36. TEREBRATULA CARNEA. Chalk.
37. TEREBRATULA NERVIENSIS. Chloritic Chalk, *Tournay, Belgium.*
38. TEREBRATULA PLICATULUS. Upper Chalk, *Kent.*
39. TEREBRATULA SEMIGLOBOSA. Chalk, *Kent.*
40. TEREBRATULA SEMIGLOBOSA. Chalk, *Mendon Paris.*
41. VENTRICULITES. Chalk, *Kent.*
42. VENTRICULITES, IN FLINT. Upper Chalk, *Kent.*
43. VENTRICULITES SIMPLEX. Middle Chalk.

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11 Lower White Chalk........ { Chalk without flints, and chalk marl, Surrey and Sussex, p. 211............ }

44. BELEMNITES LANCEOLATUS. Lower Chalk.
45. BELEMNITES DILATATUS. Lower Chalk, *Castellano* (*Basses Alpes.*)

No.

46. BERYX ORNATUS. Lower Chalk, *Kent.*
47. DISCOIDEA SUBUCULUS. Chalk Marl, *Hessia.*
48. FISH, HEAD OF. Lower Chalk, *Cambridge.*
49. GALERITES VULGARIS. Chalk, *Kent.*
50. HOLASTER PLANUS. (SPATANGUS). Lower Chalk, *Kent.*
51. HOLASTER SUBGLOBOSA. (SPATANGUS). Lower Chalk, *Wiltshire.*
52. INOCERAMUS ANNULATUS. Lower Chalk, *Kent.*
53. INOCERAMUS PLANUS. Lower Chalk.
54. OSTREA. Lower Chalk, *Sussex.*
55. PECTEN BEAVERI. Lower Chalk, *Kent.*
56. PECTEN LAMINOSUS. Lower Chalk, *Sussex.*
57. PLICATULA PECTINOIDES. Lower Chalk, *Kent.*
58. SERPULA HELICIFORMIS. Chalk Marl, *Hessia.*
59. SCAPHITES EQUALIS. Lower Chalk.
60. SPHŒRULITES. Cretaceous, *Lisbon.*
61. TEREBRATULA SUBUNDATA. Lower Chalk, *Dorsetshire.*
62. TEREBRATULA SEMIGLOBOSA. Lower Chalk, *Wiltshire* and *Kent.*
63. TURRILITES. Lower Chalk, *Wiltshire.*
64. VENTRICULITES. Lower Chalk, *Kent.*

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12 Upper Greensand	Loose sand, with bright green particles, Surrey and Sussex, p. 211............
	Firestone of Merstham, Kent, p. 218....
	Marlystone, with layers of chert, south of Isle of Wight....................

65. ACHILLEUM VOLUTA. Alpine formation.
66. AMMONITES VARICOSUS. Greensand, *Blackdown.*
67. AMMONITES VARICOSUS. Greensand, *Blackdown.*
68. CUCULLEA CARINATA. Upper Greensand, *Blackdown, Devonshire.*
69. CYPRINA ANGULATA. Upper Greensand, *Devizes, Wiltshire.*
70. CYPRINA ANGULATA. Greensand, *Blackdown.*
71. DISCOIDIA SUBUCULUS. Upper Greensand, *Warminster.*
72. EXOGYRA CONICA. Upper Greensand.
73. INOCERAMUS CONCENTRICUS. Upper Greensand, *Blackdown, Devon.*
74. PECTEN QUADRICOSTATUS. Upper Greensand, *Blackdown.*
75. PECTUNCULUS UMBONATUS. Upper Greensand, *Blackdown, Devon.*
76. SIPHONIA PYRIFORMIS. Greensand, *Blackdown.*
77. SPATANGUS CURVIATUS. *Heiliginstadt.*
78. SPONGES.
79. SPONGES. Greensand, *Farringdon.*

No.

80. SPONGES. *Farringdon.*

81. VERMICULARIA CONCAVA. Upper Greensand.

82. VENUS CAPERATA. SOW: Greensand, *Blackdown.*

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13 Gault............	Dark blue marl at base of chalk escarpment,—Kent and Sussex, p. 218.	Numerous extinct genera of conchiferous cephalopoda. Hamite, Scaphite, Ammonite, &c.

83. AMMONITES INFLATUS VAR: Gault, *Cambridge.*

84. AMMONITES BEUDANTII. Gault, *Escragnolles.*

85. AMMONITES SERRATUS. Gault, *Folkstone.*

86. AVICULA GRYPHÆOIDES. Gault, *Cambridge.*

87. DENTALIUM ELLIPTICUM. Gault, *Cambridge.*

88. HAMITES MAXIMUS. Gault, *Folkstone.*

89. INOCERAMUS CONCENTRICUS. Gault, *Kent.*

90. INOCERAMUS SULCATUS, SOW: Gault, *Kent, Folkstone.*

91. PLICATULA PECTINOIDES. Gault, *Cambridge.*

92. SOLARIUM ——— ? Gault, *Cambridge.*

93. SOLARIUM ORNATUM. Gault, *Cambridge.*

94. TEREBRATULA BIPLICATA. Gault, *Cambridge.*

95. TEREBRATULA SULCATA. Park Gault, *Cambridge.*

96. TEREBRATULA OBTUSA. SOW: Gault, *Cambridge.*

97. TROCHOCYATHUS. Gault, *Cambridge.*

98. TROCHOCYATHUS. Gault, *Cambridge.*

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14 Lower Greensand	Sand with green matter,—Weald of Kent and Sussex, p. 219. .... White, yellowish, and ferruginous sand, with concretions of limestone and chert,—Atherfield, Isle of Wight..... Limestone called Kentish Red.	Species of shells &c. nearly all distinct from those of Upper Cretaceous; most of the genera the same.

ROCKS.

99. CYCLAS LIMESTONE. *Rostenblat* near *Toplitz.*

100. FERRUGINOUS SAND. *Hampstead.*

101. GREENSAND. (IRON SAND) from the *Cave Farnham.*

102. GREENSAND WITH FOSSILS.

103. MARLS. *Southward, Essex.*

104. WHITBY SANDS. *Isle of Wight.*

FOSSILS.

105. ARCA RAULINI. Lower Greensand, *Isle of Wight.*

106. ASTACUS VECTENSIS. Lower Greensand, *Isle of Wight.*

107. ASTACUS VECTENSIS. Lower Greensand, *Isle of Wight.*

No.

108. PANOPŒA PLICATA. Lower Greensand, *Isle of Wight.*.
109. TURRITELLA &c. Lower Greensand, *Isle of Wight.*
110. GERVILLIA AVICULOIDES. Lower Greensand.
111. GERVILLIA AVICULOIDES. (TURRITELLA GRANULATA) Greensand, *Blackdown.*
112. GERVILLIA LINGULOIDES. Lower Greensand.
113. NAUTILUS UNDULATUS. Lower Greensand.
114. PECTEN INTERSTRIATUS. Lower Greensand.
115. PANOPŒA PLICATA. Lower Greensand.
116. SERPULA. Lower Greensand.
117. TEREBRATULA SELLA. SOW: Lower Greensand.
118. TEREDINA IN WOOD. Lower Greensand, *Maidstone.*
119. THETIS MINOR. Lower Greensand.

F. WEALDEN.

Periods and Groups.	*Examples.*	*Observations.*
13 Wealden Clay....	Clay with occasional bands of limestone,—Weald of Kent, Surrey, and Sussex, p. 227..	Of fresh water origin, shells of pulmoniferous mollusca and of Cypris. Land reptiles.

1. BUFONITES (FISH PALATES). Wealden, *Kent.*
2. CYCLAS MEDIA. Wealden, *Tonbridge wells.*
3. CYPRIS VALDENSIS. Wealden, *Isle of Wight.*
4. CYPRIS VALDENSIS. Wealden.
5. CYPRIS VALDENSIS. Wealden.
6. LONCHOPTERIS MANTELLI. Wealden.
7. UNIO GAULTERI. (CYCLAS MEDIA). Wealden, *Sussex.*
8. UNIO GAULTERI &c. Wealden, *Tonbridge wells.*

G. OOLITE.

Periods and Groups.	*Examples.*	*Observations.*
18 Upper Oolite....	*a.* Portland building stone, p. 259. . ..... *b.* Portland sand.... .... *c.* Kimmeridge clay, Dorsetshire, p. 260.	
19 Middle Oolite....	*a.* Coral Rag, p. 260. Calcareous freestones, Oolite, often full of Corals. Oxfordshire...................... *b.* Oxford clay—Dark blue clay—Oxfordshire and midland counties, p. 263....	Ammonites and Belemnites numerous, Large saurians, as Pterodactyles, Plesiosaurs, Ichthyosaurs.
20 Lower Oolite . .	*a.* Cornbrash and forest marble, Wiltshire, p. 263........................ *b.* Great Oolite and Stonesfield slate, Bath, Bradford, Stonesfield near Woodstock, Oxfordshire, p. 266.... *c.* Fuller's earth,—clay containing fuller's earth near Bath, p. 272........ *d.* Inferior Oolite, calcareous freestone, and yellowsands,—Cotteswold Hills, Dundry Hill, near Bristol, p. 272....	No cetaceans yet known, but three species of terrestrial mammalia, p. 267, 268. Preponderance of ganoid fish. The plants chiefly cycads, conifers, and ferns, with a few palms.

No.		
18 Upper Oolite....	a. Portland building stone, p. 259. .... b. Portland sand......................... c. Kimmeridge clay, Dorsetshire, p. 260.	Ammonites and Belemnites numerous Large saurians, as Pterodactyles, Plesiosaurs, Ichthyosaurs. No cetaceans yet known, but three species of terrestrial mammalia, p. 267, 268. Preponderance of ganoid fish. The plants chiefly cycads, conifers, and ferns, with a few palms.

ROCKS.

1. IRON OOLITE, *Wirtemberg.*
2. UPPER JURA. Limestone, *Bayreuth.*

FOSSILS.

3. AMMONITES BIPLEX. OOLITE, *Portland.*
4. AXINUS OBSCURUS, *Kimmeridge Clay.*

19 Middle Oolite. . .	a. Coral Rag, p. 260. Calcareous freestones. Oolite, often full of Corals. Oxfordshire........................ b. Oxford clay—Dark blue clay—Oxfordshire and midland counties, p. 262....	Ammonites and Belemnites numerous. Large saurians, as Pterodactyles, Plesiosaurs, Ichthyosaurus. No cetaceans yet known, but three species of terrestrial mammalia, p. 267, 268. Preponderance of ganoid fish. The plants chiefly cycads, conifers, and ferns, with a few palms.

a. CORAL RAG.

5. ASTREA LIMBATA. Coral Rag, *Nattheim, Wurtemberg.*
6. ASTARTE OVATA. Coral Rag, *Wiltshire.*
7. CERIOPORA RADICIFORMIS. Coral Rag, *Engelhardsberg.*
8. CIDARIS BLUMENBACHII. Coral Rag, *Wiltshire.*
9. CIDARIS CRENULARIS. (Hemicidaris,) Coral Rag, *Wiltshire.*
10. CORAL RAG. Malton, *Yorkshire.*
11. LITHODOMUS INCLUSUS. Coral Rag, *Wiltshire.*
12. NUCLEOLITES CLUNICULARIS. Coral Rag, Oolite, *Wiltshire.*
13. PECTEN LEVIS ? SOW : Coral Rag.
14. PENTACIMITES PENTAGONALIS, Coral Rag, *Engelhardsberg, Franconia.*
15. TEREBRATULA BIPLICATA. Coral Rag, *Streitberg.*
16. PECOPTERIS TENUIS. Oolite Shale, *Yorkshire.*
17. PTEROPHYLLUM COMPTUM. Oolite, *Yorkshire.*
18. PTEROPHYLLUM COMPTUM. Oolite Shale, *Scarborough.*
19. AMMONITES CALLOVIENSIS. Kelloway Rock, *Wiltshire.*
20. TEREBRATULA ORNITHOCEPHALA. Shewing the arms of, Kelloway, Rock, Oolite, *Wiltshire.*

b. OXFORD CLAY.

21. AMMONITES BRIGHTII. Oxford Clay, *Wiltshire.*
22. AMMONITES COMPTONI. Oxford Clay, *Wiltshire.*
23. AMMONITES COMPTONI. Oxford Clay, *Wiltshire.*
24. AMMONITES ELIZABETHÆ. Oxford Clay, *Wiltshire.*
25. AMMONITES ELIZABETHÆ. Oxford Clay, *Wiltshire.*

No.

26. AMMONITES EXCAVATES. Oxford Clay, *Cambridgeshire.*

27. AMMONITES HECTICUS. Oxford Clay, *Franconia.*

28. AMMONITES LAMBERT. Oxford Clay, *Launoy, Ardennes.*

29. AMMONITES VERTEBRALIS. Oxford Clay, *Scarborough.*

30. PANOPŒA GIBBOSA. Oxford Clay.

31. ROSTELLARIA. Oxford Clay, *Wiltshire.*

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20 Lower Oolite....	a. Cornbrash and forest marble, Wiltshire, p. 263..........................	Ammonites and Belemnites numerous.
	b. Great Oolite and Stonesfield slate, Bath, Bradford, Stonesfield near Woodstock, Oxfordshire, p. 266.	Large saurians, as Pterodactyles Plesiosaurs, Ichthyosaurus.
	c. Fuller's earth—clay containing fuller's earth near Bath, p. 272........	No cetaceans yet known, but three, species of terrestrial mammalia, p. 267, 268 Preponderance of ganoid fish. The plants chiefly cycads, conifers, and ferns. with a few palms.
	d. Inferior Oolite, calcareous freestone, and yellowsand,—Cotteswold Hills, Dundry Hill, near Bristol, p. 272....	

a. CORNBRASH.

32. NUCLEOLITES DEPRESSUS. Cornbrash, *Wiltshire.*

33. OSTREA MARSHII. Cornbrash.

34. TEREBRATULA INTERMEDIA. Cornbrash, *Wiltshire.*

35. TEREBRATULA LAGENALIS. Cornbrash, *Wiltshire.*

36. TEREBRATULA OBOVATA. Cornbrash, *Wiltshire.*

b. GREAT OOLITE.

37. ASTARTE RHOMBOIDALIS. Great Oolite.

38. GERVILLIA ACTUA. Great Oolite, *Collyweston.*

39. MODIOLA IMBRICATA. Great Oolite.

40. TEREBRATULA INTERMEDIA. BROYZON. Great Oolite, *France.*

41. TEREBRATULA MAXILLATA. Great Oolite, *Oxfordshire.*

42. TEREBRATULA ORBICULARIS. Great Oolite, *Wiltshire.*

b. BRADFORD CLAY.

43. APIOCRINUS ROTUNDUS. Bradford Clay, *Wiltshire.*

44. OSTREA COSTATUS. Bradford Clay, *Bavelliers* by *Belfort.*

45. TEREBRATULA COARCTATA. Bradford Clay, *Wiltshire.*

c. FULLERS EARTH.

46. TEREBRATULA ORNITHOCEPHALA. Fullers Earth, *Wiltshire.*

47. TEREBRATULA ORNITHOCEPHALA. Fullers Earth, *Wiltshire.*

48. TEREBRATULA VARIANS. Fullers Earth, *Wiltshire.*

d. INFERIOR OOLITE.

49. AMMONITES PARKINSONI. Inferior Oolite.

50. ASTARTE ELEGANS. Inferior Oolite.

51. ASTARTE ELEGANS. Inferior Oolite, *Bayeux.*

52. ASTARTE MODIOLARIS. Inferior Oolite, *Bridport.*

53. BELEMNITE shewing Alveolus. Inferior Oolite.

No.

54. DISCOIDEA HEMISPHERICA. Inferior Oolite.
55. PLEUROTOMARIA ORNATA. Inferior Oolite, *Bridport*.
56. TEREBRATULA ——— ? Inferior Oolite, *Strand*.
57. TEREBRATULA ANGULATA. Inferior Oolite, *Cheltenham*.
58. TEREBRATULA VULLATA. Inferior Oolite, *Pyrenees*.
59. TEREBRATULA CORNUTA. Marlstone, *Ilminster, Somerset*.
60. TEREBRATULA CYNOCEPHALA. Inferior Oolite, *Glostershire*.
61. TEREBRATULA FIMBRIA. Inferior Oolite, *Glostershire*.
62. TEREBRATULA PEROVALIS. Inferior Oolite, *Cheltenham*.
63. TEREBRATULA SPINOSA. Inferior Oolite, near *Bath*.
64. TEREBRATULA SPHEROIDALIS. Marlstone, *Somerset*.
65. VERMETUS CONCINNUS. Inferior Oolite, *Yorkshire*.

H. LIAS.

21 Lias....	Argillaceous limestone, marl and clay, —Lyme Regis, Dorsetshire, p. 273.	Mollusca, reptiles, and fish of genera analogous to the Oolite.

ROCKS.

1. LIAS MARL, containing remains of Saurian, *Mistelgau* near *Bayreuth*.
2. LIAS MARL, *Wirtemberg*.
3. LIAS.

FOSSILS.

4. ACRODUS NOBILIS, Lias, *Lyme Regis*.
5. AMMONITE. Lias, Clay Ironstone.
6. AMMONITES BIFRONS. Lias, *Somerset*.
7. AMMONITES BIFRONS ? Lias, *Somerset*.
8. AMMONITES BIRCHII. Section of, Lias, *Lyme*.
9. AMMONITES COSTATUS. Lias, *Banz, Franconia*.
10. AMMONITES WALCOTTI. Lias, *Whitby, Yorkshire*.
11. (AMPHIDESMA) PANOPŒA DONACIFORME. PHILLIPS. Lias, *Lincolnshire*.
12. AVICULA LONGICOSTATA, STUTCHBURY. Loudon's Mag. Nat. Hist. New series vol. 3, p. 163.
13. BELEMNITES DIGITALIS. Lias marl, *Bayreuth*.
14. COPROLITES. Lias, *Lyme Regis*.
15. GRYPHŒEA CYMBRIUM. *Goppengen. Wirtemberg*.
16. GRYPHŒA INCURVA. Lias near *Bath*.
17. HYBODUS BECHEI. Lias, *Lyme Regis*.
18. ICHTHYOSAURUS. Lias, *Lyme Regis*.
19. ICHTHYOSAURUS. Teeth of, Lias, *Lyme Regis*.
20. ICHTHYOSAURUS. Paddle of, Lias, *Lyme Regis*.
21. ICHTHYOSAURUS. Part of paddle of, BLUE Lias, *Lyme Regis*.

No.

22. LIMA GIGANTEA. Lias, *Cheltenham.*

23. NUCULA OVUM. Lias, *Lincoln.*

24. OPHIURA EGERTONI. Lias, *Lyme Regis.*

25. OPHIURA. RAY OF, Lias, *Whitby.*

26. PECTEN. Lias, Middle Jura, *Khoraschorrs, Moxorr.*

27. PECTEN EQUIVALVIS. SOW: Lias, *Somerset.*

28. SPIRIFER ROSTRATUS. DEBUSH. Lias, *Puyseriem.*

29. TEREBRATULA FURCILLATA. Lias, *Somerset.*

30. TEREBRATULA NUMISMALIS. Lias, *France.*

31. TEREBRATULA TETRAHEDRA. Lias, *Somerset.*

I. TRIAS.

22 Upper Trias.....	Keuper of Germany or variegated marls—Red, grey, green, blue and white marls and sandstone with gypsum—Wirtemberg, bone-bed of Axmouth Dorset, p 289........	Batrachian reptiles, *e. g.* Labyrinthodon, Rhyncosaurus, &c. Cephalopoda: Ceratites. No Belemnites, Plants. Ferns, Cycads, Conifers.
23 Middle Trias or Muschelkalk...	Compact greyish limestone with beds of dolomite and gypsum.—North of Germany, p 287 Wanting in England..	With Equisetites and Calamite.
24 Lower Trias....	Variegated or Bunter sandstone of Germans Red and white spotted sandstone with gypsum and rock salt, p. 288. Part of New Red sandstone of Cheshire with rock salt, p. 294....	Plants different for the most part from those of the Upper Trias.

22. UPPER TRIAS.

1. NEW RED SANDSTONE, *Sangerhausen.*

2. KEUPER SANDSTONE, *Stuttgardt.*

3. NOTHOSAURUS MIRABILIS. (Trias).

23. MIDDLE TRIAS.

ROCK

4. CRYSTALLINE MUSCHELKALK, *Buidlocherberg* near *Bayreuth.*

5. LOWER MUSCHELKALK. *Wellen balk, Rehebach, Heidelberg.*

FOSSILS.

6. AVICULA SOCIALIS, Mytilus socialis, Superior Muschelkalk, *Lametarberg* near *Bayreuth.*

7. BUCCINUM CORRUGATUM, Muschelsand *Parma.*

8. CYTHERIUM CINCTUM. Muschelsand *Alzei,*

9. CERATODUS GULIELMI. (Trias), Muschelkalk.

10. DRACOSAURUS BRONNII. (Trias), Muschelkalk.

11. ENCRINUS LILLIFORMIS. Muschelkalk (rare) *Germany.*

12. ENCRINUS LILLIFORMIS. Muschelkalk, *Newstadt, Bavaria.*

13. ICHTHYOSAURUS. Fragments of bone of, Keuper, *Hohenhám, Stuttgardt.*

14. LYCOPODIOLITES ARBORENS. Keuper marl with, *Coburg.*

15. LYNODON TRIGONOLITES (VULGARIS.) Superior Muschelkalk, *Bayreuth.*

16. MYACITIS ELONGATUS. Superior Muschelkalk, *Bayreuth.*

17. MYOPHORIA VULGARIS. (Trias), Muschelkalk, *Germany.*

AQUEOUS ROCKS.

IV. PRIMARY.

K. PERMIAN.

Periods and Groups.	*Examples.*	*Observations.*
25 Upper Permian..	Yellow magnesian limestone, Yorkshire and Durham p. 301.................... Zechstein of Thuringia, Upper part of Permian beds, Russia.....	Organic remains, both animal and vegetable, more allied to primary than to secondary periods
26 Lower Permian.	*a.* Marl slate of Durham and Thuringia. *b.* Lower New Red sandstone of north of England and Rothliegendes of Germany. *a.* and *b.* Lower part of Permian beds, Russia, p. 301....	Thecodont saurians, Heterocercal fish of genus Palæoniscus, &c.

25. UPPER PERMIAN.

ROCKS.

No.

1. BITUMINOUS MARL SLATE. *Eisleben.*
2. CAVERNOUS MAGNESIAN LIMESTONE. *Eisleben.*
3. EARTHY SWINSTONE. *Eisleben.*
4. ZECHSTEIN formation Limestone. Gera, *Thurigina.*

FOSSILS.

5. FENESTELLA VIRGULIFERA. Permian, *Humbleton hill.*
6. PRODUCTUS ACULEATUS. Zechstein marl.

26. LOWER PERMIAN.

7. PECTEN PUSILLUS. Permian, *Durham.*
8. PALÆONISCUS FRIESLEBENI. Permian, *Thuringia.*

L. CARBONIFEROUS.

Periods and Groups.	*Examples.*	*Observations.*
27 Coal measures ..	*a.* Strata of sandstone and shale with beds of coal.—S. Wales and Northumberland, p. 309.... .... *b.* Millstone grit.—S. Wales, Bristol coal-field, Yorkshire, p. 308.	Great thickness of strata of fluvio-marine origin, with beds of coal of vegetable origin, based on soils retaining the roots of trees. Oldest of known reptiles of Archegosaurus, Sauroid fish.
28 Mountain limestone.	Carboniferous or mountain limestone, with marine shells and corals.... .... Mendip Hills, and many parts of Ireland, p. 340....	Brachiopoda of genus productus. Cephalopoda of genera Cyrtoceras, Goniatite, Orthoceras. Crustaceans of the genus Phillipsia. Crinoidians abundant.

27 Coal measures ..	*a.* Strata of sandstone and shale, with beds, of coal,—S. Wales and Northumberland; p 309.... .... *b* Millstone grit,—S. Wales, Bristol coal-field, Yorkshire, p. 308....	Great thickness of strata of fluvio-marine origin, with beds of coal of vegetable origin, based on soils retaining the roots of trees. Oldest of known reptilee of Archegosaurus, Sauroid fish.

No.

ROCKS.

1. ANTHRACITE, *Shonfield*.
2. COAL SANDSTONE, *Glasgow*.
3. BROWN COAL SANDSTONE. *Rorschuch, Bodensee*.
4. BITUMINOUS SHALE or COAL, *Torbane hill, Scotland*. This substance was recently made the subject of trial in the *Scotch* Courts, as to whether it should be considered coal or not.
5. CYCLOPTERIS FLABELLIFORMIS. Ironstone of Coal measures.
6. MEGALICHTHYS HIBBERTI. Coal shale with jaw tooth of the, *Carluke*.
7. MEGALICHTHYS HIBBERTI. Scales of the, *Carluke*.
8. MEGALICHTHYS HIBBERTI. Coal shale with palatial tooth of the, *Carluke*.
9. MEGALICHTHYS HIBBERTI. Portion of the large scale of the, *Carluke, Lanarkshire*.
10. NEUROPTERIS LOSHII. Coal measures, Nodule of Ironstone, *Coalbrooke Dale*.
11. ORBICULA. Coal measures, near *Glasgow*.
12. PECOPTERIS. Coal measures, *Spain*.
13. PECOPTERIS. Coal measures, *Spain*.
14. PECOPTERIS ASPEDIDOIDES. Coal measures, *Newcastle*.
15. PECOPTERIS CISTII. Coal measures, *Newcastle*.
16. PECOPTERIS CYATHEA. Coal measures.
17. PECOPTERIS CYATHEA ? Coal measures.
18. PECOPTERIS MILTONI AND NEUROPTERIS *spec*. Coal measures, *Newcastle*.
19. PECOPTERIS MURICATA. Coal measures, *Durham*.
20 PECOPTERIS PLUMOSA. Coal measures, *Newcastle*.
21. PECOPTERIS POLYMORPHA. Coal measures, *Newcastle*.
22. PECOPTERIS POLYMORPHA. Coal measures, *Newcastle*.
23. PECOPTERIS SERLII. Coal measures, *Newcastle*.
24. PENTREMITES FLOREALIS. Carboniferous, *America*.
25. SIGILLARIA. Coal measures. T. A. K. 1839.
26. SIGILLARIA.
27. SPHENOPTERIS ELEGANS. Coal measures, *Waldenberg*.
28. SPHENOPTERIS TRIFOLIATA. Coal measures, *Newcastle*.
29. TRIGONOCARPUM NÖGGERATHII. Peel Quarry, Wortley. Coal measures, *Lancashire*.

28 Mountain Limestone..........	Carboniferous or mountain limestone, with marine shells and corals.... .... Mendip Hills, and many parts of Ireland, p. 340........	Brachiopoda of genus productus. Cephalopoda of genera Cyrtoceras, Goniatite, Orthoceras. Crustaceans of the genus Phillipsia. Crinoidians abundant.

ROCKS.

No.

30. MOUNTAIN LIMESTONE. *Glasgow.*

31. MOUNTAIN LIMESTONE. Ruppersdorf, *Bohemia.*

FOSSILS.

32. CYATHOCRINITIS RUGOSA. Mountain Limestone, *Carluke.*

33. COCHLIODUS. Mountain Limestone, *Bristol.*

34. ENCRINITIS LIMESTONE.

35. EUOMPHALUS PENTANGULATUS. Carb. Limestone, *Ireland.*

36. NATICOPSIS PHILLIPSII. Carb. Limestone, *Cork, Ireland.*

37. NUCULA. Mountain Limestone, *Carluke.*

38. ORTHIS RESUPINATA. Carb. Limestone, *Derbyshire.*

39. PECTEN GRANOSUS? Carb. Limestone, *Ireland.*

40. PRODUCTUS MARTINI. Mountain Limestone, *Carluke.*

41. SPIRIFER STRIATUS. Carb. Limestone.

M. DEVONIAN.

29 Upper Devonian.	*a.* Yellow sandstone of Dura Den, Fife. *b.* Red sandstone and marl with cornstone of Herefordshire and Forfarshire. Paving and roofing-stone, Forfarshire.. Upper part of Devonian beds of south Devon........	Tribe of fish with hard coverings like Chelonians, Pterichthys, Pamphractus, &c., also of genera Cephalaspis, Holoptichius, &c. No reptiles yet known.
30 Lower Devonian.	Grey sandstone with Ichthyolite,—Caithness, Cromarty, and Orkney. Lower part of Devonian beds of South Devon, and green chloritic slates of Cornwall, limestone of Gerolstein, Eifel.	Fish, partly of same genera, but of distinct species from those in Upper Devonian; also Osteolepis Coccosteus, Glyptolepis, Dipterus, &c.

29. UPPER DEVONIAN.

1. ASTRŒA. Species Devonian, *Torquay.*
2. ASTRŒA HELIANTHOIDES. Devonian, *Boulogne.*
3. BELLEROPHON. Devonian, *Spain.*
4. CYATHOPHYLLUM CUESPITOSUM. Devonian system, *Bensberg* near *Cologne.*
5. GONIATITIS INTUMESCENS. *Beyrich, Nassau.*
6. PHACOPS LACINIATUS. Devonian, *France.*
7. PTERICTHYS QUADRATUS. Devonian, *Scotland.*
8. SPIRIFER. Devonian, *Spain.*
9. SPIRIFER PELLICO. Devonian, *Spain.*
10. SPIRIFER VERNEULLII, shewing interior. Devonian, *France.*
11. TURRITELLA CORONATA. Devonian superior, *Paffrath.*
12. TRIGINOTRELA OSTEOLATA. Devonian superior, *Gerolstein.*

No.

30. LOWER DEVONIAN.

13. CALCEOLA SANDALINA. Devonian, *Eifel.*
14. CLYMENIA LEVIGATA. Devonian, *Eifel.*
15. COCCOSTEUS. Devonian, *Scotland.*
16. FENESTELLA ANTIQUA. Devonian, *Cornwall.*
17. HOMALONOTUS DELPHINOCEPHALUS. Devonian, *Eifel.*
18. MACROCHEILUS ARCULATUS. Devonian, *Eifel.*
19. MEGALODON CUCULLATUS. Devonian, *Eifel.*
20. ORTHIS. Devonian, *Eifel.*
21. OSTEOLEPIS. Devonian.
22. OSTEOLEPIS. Devonian, *Scotland.*
23. OSTEOLEPIS MAJOR. Devonian, *Scotland.*
24. PHACOPS MACROPTHALMUS. Devonian, *Eifel.*
25. SPIRIFER CANALIFERA. S. OSTIOLATA ? Devonian, *Eifel.*
26. SPIRIFER VERNEULLI. Devonian.
27. ——————— ? Devonian.
28. STRIGOCEPHALUS BURTINI. Devonian, *Eifel.*
29. TEREBRATULA ASPERA. Devonian, *Eifel.*
30. TEREBRATULA CONCENTRICA. Devonian, *Eifel.*
31. TEREBRATULA FERITA AND SPIRIFER HETEROCLYTUS. Devonian, *Eifel.*
32. TEREBRATULA RETICULARIS, VAR : aspera. Devonian, *Eifel.*

II. SILURIAN.

31 Upper Silurian..	*a.* Tilestone of Brecon and Cærmarthen. *b.* Limestone and shale, Ludlow, Shropshire *c.* Wenlock or Dudley limestone	Oldest of fossil fish yet discovered. Trilobites and Graptolites abundant. Brachiopoda very numerous. Cephalopoda ; Bellerophon, Orthoceras.
32 Lower Silurian..	*a.* Caradoc sandstone, Cær Caradoc, Shropshire *b.* Landeilo flags, calcareous flags and schists,—Builth, Radnorshire, Llandeilo, Cærmarthenshire	Same genera of invertebrate animals as in Upper Silurian, but species chiefly distinct Trinucleus : Caractaci, Cystideæ, p. 358. No land plants yet known. Foot prints of tortoise, see note, p.360.

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31 Upper Silurian..	*a.* Tilestone of Brecon and Cærmarthen. *b.* Limestone and shale, Ludlow. Shropshire *c.* Wenlock or Dudley limestone	Oldest of fossil fish yet discovered. Trilobites and Graptolites abundant. Brachiopoda very numerous. Cephalopoda : Bellerophon, Orthoceras.

1. SILURIAN SANDSTONE. *Wessela* near *Beraun.*
2. ATRYPA GALEATA. *Hurst hill,* near *Dudley.*
3. ATRYPA TEREBRATULA. Lineata. *Tournay, Belgium. Devon.*
4. CALAMOPORA SPONGITIS. Silurian Rock. *Bensburg* near *Cologne.*
5. CELLEPORA, MADREPORA, RETIPORA, ENCRINITES.

No.

6. CALYMENE BLUMENBACHII. Head of, Silurian, *Dudley*.

7. CORALS from *Dudley*. LIMARIA CLATHRATA. Silurian.

8. CORALS. Upper Silurian, *Wenlock*.

9. CYSTIPHYLLUM SILURIENSE. Upper Silurian, *Dudley*.

10. EUOMPHALUS FUNATUS. *Dudley*, 1837. Dr. M.

11. EUOMPHALUS FUNATUS, t. 17-20.

12. GRAPTOLITES LÆVIGATUS. Silurian, *Bohemia*.

13. GRYPHÆA GLOBOSA (OSTREA). Baculite Limestone.

14. ORTHIS HYBRIDA. Silurian, *Dudley*.

15. PENTAMERUS KNIGHTII. Aymestrey Limestone, *Sedgeley*.

16. PHACOPS CAUDATUS. Aymestrey Limestone, *Sedgeley*.

17. PENTAMERUS KNIGHTII. Aymestrey Limestone, *Sedgeley*.

18. STROMATOPORA CONCENTRICA. Silurian, *Dudley*.

19. SPIRIFER BILOBA. Silurian, *Dudley*.

20. TEREBRATULA SUBLEPIDA. Silurian, *Dudley*.

21. TEREBRATULA RETICULARIS. Silurian, *Dudley*.

32 Lower Silurian..	a. Caradoc sandstone, Cær Caradoc, Shropshire........ .... b. Llandeilo flags, calcareous flags and schists,—Builth, Radnorshire, Llandeilo, Cærmarthenshire........	Same genera of invertebrate animals as in Upper Silurian, but species chiefly distinct Trinucleus caractaci, Cystideæ, p. 358. No land plants yet known. Foot prints of tortoise, see note, p.360

22. AGNOSTUS PISIFORMIS. Silurian, *Sweden*.

23. ASAPHUS EXPANSUS. Silurian, *Russia*.

24. ASAPHUS RANICEPS. Silurian, *Russia*.

25. ATRYPA GALEATA. *Hurst hill*, near *Dudley*.

26. GRAPTOLITHUS. Lower Silurian, *Scotland, Hurtfell, Dumfrieshire*.

27. OGYGIA BUCHII. Lower Silurian, *Cambrian of Sedgwick*.

28. ORTHIS BIFORATUS. Silurian, *America*.