

The different species of animals found near the skeleton, in the determination of which M. Rivière has been assisted by Dr. Sénéchal, are—CARNIVORES.—*Felis spelæa*, *Ursus spelæus*, *Ursus*, probably *U. arctos*, *Canis lupus*, *Erinaceus*. PACHYDERMS.—*Rhinoceros*, *Equus*, *Sus scrofa*. RUMINANTS.—*Bos primigenius*, *Cervus alces*, *C. Canadensis*, a *Cervus* smaller than *C. elaphus*, and which may be that of Corsica, *C. capreolus*, *Capra primigenia* ? (Gervais), *Antilope rupicapra*, or Chamois. RODENTS.—*Lepus*, a lower jaw with teeth. Among the animals above enumerated, three by their presence around the skeleton and above it—the great *Felis*, *Ursus spelæus*, and *Rhinoceros*, and which had been found previous to the human skeleton—indicate, M. Rivière thinks, the epoch at which the fossil man of Baoussé-roussé had lived. The Reindeer has not been found in the caves of Mentone, and its remains appear to be equally wanting in the other caverns of Italy. Among the principal objects found near the skeleton were two flint knives, a bone pin worked from the radius of a stag, shells (*Nassa neritea*), twenty-two perforated canines of the Stag, all these objects having the red colour of the other parts of the skeleton and chiefly of the head. This colour is due to peroxide of iron, formed by the hydration of oligist iron, of which the surface of the body had been covered after death, showing the interment of the fossil man. This interment had taken place without any disturbance, on a soil formed of cinders, charcoal, and calcined stones, and among the remains of the life of the period.¹

J. M.

REVIEWS.

REVIEW OF THE CONTRIBUTIONS TO FOSSIL BOTANY PUBLISHED IN BRITAIN IN 1871.

By WILLIAM CARRUTHERS, F.R.S.

THE following papers have been published :—

BAILY, W. H. Figures of Characteristic British Fossils. Part iii. pl. 28.

The author devotes this plate to representations of four plants from the Devonian measures of Ireland and Scotland, namely, *Palæopteris hibernica*, Schimp.; *Knorria Bailyana*, Schimp.; *Cyclostigma Kiltorkense*, Haught.; and *Leipidodendron iothum*, Ung.

BINNEY, E. W. Observations on the Structure of Fossil Plants found in the Carboniferous Strata. Part ii. *Lepidostrobus* and some allied cones. Palæont. Soc., Mon., pp. 33–62, pl. vii.–xii.

The author figures two cones, which, from the similarity in the structure of their axis respectively to *Lepidodendron Harcourtii*, With., and *L. vasculare*, Binney, he believes to be the fruits of these species. Nine cones, belonging to the same group as that to which the name *Flemingites* was given, are figured, and named as eight new species of *Lepidostrobus*. The most important observation in regard to these cones is the discovery, according to the author, of microspores in the sporangia of the upper portion of one of the cones, and the existence in all of them of sporangia enclosing the macrospores (Binney) or sporangia (Carruthers). (See further on, under Equisetaceæ, *Lepidostrobus ambiguus*.) Under the name *Bowmanites Cambrensis* gen. and sp. nov., Mr. Binney figures a Calamitean cone, in which several sporangia are borne in a linear series on each scale. It is to be regretted that the author gives

¹ For a further account of this interesting discovery, see the article by Professor Morris in the July number of the *Popular Science Review*.

no diagnostic characters for the new genus and the many new species he proposes in this important memoir.

CARRUTHERS, W. On some supposed Vegetable Fossils. *Quart. Journ. Geol. Soc.*, vol. xxvii. pp. 443-448, pl. xix.

The author describes some physical impressions and zoological structures, which have been erroneously supposed to belong to the vegetable kingdom.

— On two Undescribed Coniferous Fruits from the Secondary Rocks of Britain. *GEOL. MAG.*, Vol. VIII. pp. 540-544, Pl. XV.

The author describes the cone of a second species of Pine associated with a second species of *Sequoia* from the Gault, and shows that the type of Pine associated with the *Wellingtonias* of the Gault was the same as that now found with these trees in Western North America.

— On the History and Affinities of the British *Coniferae*. Abstract. *Brit. Ass. Reports*, 40th Meeting, p. 71.

The author traces the appearance, development, and affinities of the fossil and recent Conifers of Britain.

— On the Sporangia of Ferns from the Coal Measures. Abstract. *Brit. Ass. Reports*, 40th Meeting, p. 71.

The sporangia are referred to Hymenophyllaceous Ferns.

— Remarks on the Fossils from the Railway Section at Huyton. Abstract. *Brit. Ass. Reports*, 40th Meeting, p. 71.

The author described in general terms a series of Carboniferous fossils collected at Huyton by the Rev. H. Higgins.

— Note on an *Antholithes* discovered by C. W. Peach, Esq. Abstract. *Brit. Ass. Reports*, 40th Meeting, p. 72.

The specimens showed that *Antholithes* were the spikes of *Cardiocarpon*.

DAWSON, J. W. On Spore-cases in Coals. (Reprinted from 'Silliman's Journal,' April, 1871.) *Ann. Mag. Nat. Hist.* 1871, pp. 321-329.

The author figures some spore-cases from a brown bituminous shale of Upper Devonian age from Kettle Point, Lake Huron, which he names *Sporangites Huronensis* and he considers they belong to the species of *Lepidodendron* found in the bed. His *Sporangites glabra* is "almost without doubt the spore-cases of *L. corrugatum*." He has found spore-cases in many American coals, but he considers their presence as "accidental rather than essential to coal-formation."

— The Fossil Plants of the Devonian and Upper Silurian Formations of Canada. Montreal and London, 1871, p. 100, pl. i.-xx.

The author gives the results of his researches in these strata prosecuted for several years, and here brought to a conclusion, so far as the accessible material will admit. He reports more than 120 species of land plants. The work is, with a few additions and some necessary changes, the same as the memoir read to the Royal Society in 1870, and now in its archives. Twenty-six new species are named, mostly founded on very imperfect materials, and imperfectly described. These new species are included in the systematic list.

— On New Tree-ferns and other Fossils from the Devonian. *Quart. Journ. Geol. Soc.* vol. xxvii. pp. 269-275, pl. xii. Abstract. *GEOL. MAG.*, Vol. VIII. p. 231.

Three Fern stems and some other fossils are described in this paper from the Devonian rocks of North America.

— On the Structure and Affinities of *Sigillaria*, *Calamites*, and *Calamodendron*. *Quart. Journ. Geol. Soc.* vol. xxvii. pp. 147-161, pl. vii.-x.

The author holds that *Calamites* and *Lepidodendron* are distinctly cryptogamous, and are related to, or included in *Equisetaceae* and *Lycopodiaceae*; but *Calamodendron* seems to form a connecting link between *Calamites* and the ribbed *Sigillariae*, while *Lepidophloios* seems to connect *Lepidodendron* with *Sigillaria* of the *Favularia* type. On the other hand, the ribbed *Sigillariae* may be related through *Dadoxylon* to the modern Conifers, and the *Favularia* may be related to the Cycads.

HEER, OSWALD. On the Carboniferous Flora of Bear Island. Abstract. *Quart. Journ. Geol. Soc.* vol. xxvii. p. 1; *Ann. Mag. Nat. Hist.* vol. vii. p. 175.

The author compares the flora of this island with the plants found in the Yellow Sandstones of Ireland, and concludes that they are of Lower Carboniferous age, and form a special group, for which he proposes the name "Ursa-stage."

HULL, EDWARD. On the Geological Age of the Ballycastle Coalfield, with Palaeontological Notes by W. H. Baily. *Journ. Roy. Geol. Soc. Ireland*, vol. ii.

The author considers these beds the equivalents of the Upper beds of coal under the Lower Carboniferous series of Scotland. The report by Mr. Baily on the fossils confirms this opinion. The only fossils found belong to known species of the genera *Sigillaria* and *Lepidodendron*.

PHILLIPS, JOHN. Geology of Oxford and the Valley of the Thames. Oxford, 1871, pp. 523.

This volume contains lists, and sometimes descriptions and figures, of the plant-remains found in the different formations within the boundaries to which it refers. The new species are included in the systematic list.

THOMSON, J. On the Occurrence of *Stigmara stellata*, Eichw., in the Lower Carboniferous rocks, Lanarkshire. Abstract. GEOL. MAG. Vol. VIII. p. 236.

WILLIAMSON, W. C. On the Organization of *Volkmanina Dawsoni*. Mem. Lit. Phil. Soc. Manch., 3rd series, vol. v. pp. 28–40, pl. i.–iii. Abstract. Proc. Lit. Phil. Soc. Manch. vol. x. pp. 105, 106.

The author describes the minute structure of a Calamitean cone of the same type as that to which Binney had given the name *Bowmanites Cambrensis*. Each whorl of cones in the cone supports several sporangia in a linear series.

— On *Stigmara*. Abstract. Proc. Lit. Phil. Soc. Manch. vol. x. pp. 116–118.

The author describes this fossil as having a true cellular pith and two kinds of medullary rays. It could not be the root of *Lepidodendron*, and it showed that we were still ignorant of the internal organization of *Sigillaria*.

— On the Organization of the Stems of Calamites. Abstract. Brit. Ass. Reports, 40th Meeting, pp. 89, 90. Abstract. Proc. Roy. Soc. vol. xix. pp. 268–271. Ann. Mag. Nat. Hist. pp. 299–302.

The author describes the minute structure of the stems, which he places in two generic groups, the *Calamites* and *Calamopitrus*, the former to comprehend those without infranodal canals, the latter those which possess them.

— On the Organization of the Fossil Plants of the Coal Measures. Part ii., *Lepidodendra* and *Sigillaria*. Abstract. Proc. Roy. Soc. vol. xix. pp. 500–504. Ann. Mag. Nat. Hist. pp. 134–138.

The author describes the structure of *Lepidodendron*, *Sigillaria*, *Diploxyylon*, *Ulo-tendron*, *Halonia*, and *Favularia*, and believes that all these forms are but modifications of the Lepidodendroid type.

YOUNG, J., and JAS. ARMSTRONG. On the Carboniferous Fossils of the West of Scotland. Trans. Geol. Soc. Glasgow, vol. iii., Suppl.

The authors give a systematically-arranged list of the known fossil plants, amounting in all to ninety species, with the localities where they have been found.

Synopsis of the Genera and Species Described or Figured in the Memoirs enumerated above.

FILICES.

Cauleopteris Lockwoodi, Dawson, Quart. Journ. Geol. Soc., vol. xxvii. p. 270; pl. xii. f. 1–3. Devonian. Gilboa.

C. antiqua, Newb.; Daws. Quart. Journ. Geol. Soc. vol. xxvii. p. 271; pl. xii. f. 4. Devonian. Ohio.

C. peregrina, Newb. l. c. p. 272; pl. xii. f. 506. Devonian. Ohio.

Glossopteris longifolius, Phillips, Geol. Oxford, p. 168. Oolite. Eyeford.

Neuropteris retorquata, Daws. Foss. Pl. Canada, p. 50; pl. xvii. f. 197. Devonian. Lepreau.

N. Selwyni, Daws. l. c.; pl. xvii. f. 198. Devonian. St. John.

Palaeopteris hibernica, Schimp.; Baily, Characteristic British Foss. pl. 28, f. 1.

Pecopteris approximata, Phillips, Geol. Oxford, p. 168; diag. xxviii. f. 2. Oolite. Stonesfield.

P. densifolia, Daws. Foss. Pl. Canada, p. 56; pl. xvii. f. 195, 196. Devonian. St. John.

P. diversa, Phillips, l. c.; diag. xxviii. f. 1. Oolite. Stonesfield.

P. incisa, Phillips, l. c.; diag. xxviii. f. 5. Oolite. Stonesfield.

Psaronius Erianus, Daws. Foss. Pl. Canada, p. 58. Devonian. New York.

P. textilis, Daws. l. c. p. 59. Devonian. New York.

Rachiopteris gigantea, Daws. Foss. Pl. Canada, p. 57. Devonian. New York.

R. palmata, Daws. l. c. Devonian. New York.

Sphenopteris plumosa, Phillips, Geol. Oxford, p. 168; diag. xxviii. f. 3. *Oolite*. Stonesfield.

S. splendens, Daws. Foss. Pl. Canada, p. 53; pl. xvi. f. 186. No locality.

Teniopteris angustata, Phillips, Geol. Oxford, p. 168; diag. xxviii. f. 8-10. *Oolite*. Stonesfield.

EQUISETACEÆ.

Annularia laxa, Daws. Foss. Pl. Canada, p. 31; pl. vi. f. 64-69. *Devonian*. Gaspe.

Asterophyllites lenta, Daws. Foss. Pl. Canada, p. 29; pl. v. f. 60. *Devonian*. St. John.

Bowmanites Cambrensis, Binney, Carb. Fl. p. 59; pl. xii. Pal. Soc. *Carboniferous*. Pontypool, S. Wales.

Calamites, Williamson, Brit. Ass. Rep. 40th Meeting, p. 89; Proc. Roy. Soc. vol. xix. p. 268.

Calamodendron antiquius, Daws. Foss. Pl. Canada, p. 24; pl. iii. f. 39. *Devonian*. Lepreau.

C. tenuistriatum, Daws. l. c. p. 25; pl. iii. f. 40. *Devonian*. Lepreau.

Calamopitius, Williamson, Brit. Ass. Rep. 40th Meeting, p. 90; Proc. Roy. Soc. vol. xix. p. 271.

Lepidostrobus ? *ambiguus*, Binney, Carb. Fl. p. 55; pl. xi. f. 1. Pal. Soc. This undoubtedly belongs to the genus *Bowmanites*, which Mr. Binney figures in his next plate. The elaborate drawings and descriptions of Professor Williamson show beyond doubt, what the analogy of allied plants made one expect, that the round bodies are sporangia, and not as Mr. Binney supposes macrospores; and the introduction of a large sac inclosing the sporangia in this species makes it doubtful whether they exist in the specimens of cones of *Flemingites*, which he figures as seven species of *Lepidostrobus*. Besides, the preparations of Professor Huxley have conclusively established my interpretation of the "macrospores," for he had detected around these bodies immense quantities of microspores composed, as in R. Brown's *Triplosporites*, of three sporules, and in the interior of some of the "macrospores" themselves he had observed and has shown to me several microspores yet remaining. *Carboniferous*. Arran.

Pennularia elongata, Daws. Foss. Pl. Canada, p. 33; pl. vii. f. 77. *Devonian*. St. John.

P. nodosa, Daws. l. c.; pl. vii. f. 78. *Devonian*. St. John.

Sphenophyllum ovale, Phillips, Geol. Oxford, p. 86; f. 3. *Carboniferous*. Forest of Dean.

Volkmannia Dawsoni, Williamson, Mem. Lit. Phil. Soc. Manch. 3rd ser. vol. v. p. 28; pl. i.-iii. This obviously belongs to Binney's genus *Bowmanites*, and is perhaps the same species as that of which Binney figures the external form. *Carboniferous*.

LYCOPODIACEÆ.

Arthrostigma gracile, Daws. Foss. Pl. Canada, p. 41; pl. xiii. *Devonian*. Gaspe.

This is a species of that group of plants to which Houghton gave the name *Cyclostigma*. It has no points of correspondence with *Calamites*; the leaves are spirally arranged in all the specimens figured, and not in whorls as in Dr. Dawson's restoration.

Cyclostigma densifolium, Daws. Foss. Pl. Canada, p. 43; pl. viii. f. 92-96. *Devonian*. Gaspe.

C. Kiltorkense, Haught.; Baily, Characteristic Brit. Foss. pl. 28. f. 3. *Devonian*. Kiltorkan.

Knorria Bailyana, Schimp.; Baily, Characteristic Brit. Foss. pl. 28. f. 2. *Devonian*. Kiltorkan.

Lepidodendron, Williamson, Proc. Roy. Soc. vol. xix. p. 500.

L. Harcourtii, Witham; Binney's Carb. Fl. p. 46; pl. vii. Pal. Soc. *Carboniferous*. Oldham.

L. nothum, Ung. Baily, Characteristic Brit. Foss. pl. 28, f. 4. *Devonian*. Caithness.

L. vasculare, Binney, Palæont. Soc. l. c. p. 49; pl. viii. *Carboniferous*. Oldham.

Lepidophloios antiquius, Daws. Foss. Pl. Canada, p. 36; pl. viii. f. 90, 91. *Devonian*. Gaspe.

L. dubius, Binney, l. c. p. 52; pl. ix. f. 3. *Carboniferous*. Airdrie.

L. Hibbertianus, Binney, l. c. p. 55; pl. x. f. 2. *Carboniferous*. Burdiehouse.

- L. latus*, Binney, l. c. p. 57; pl. xi. f. 3. *Carboniferous*. Arran.
L. levidensis, Binney, l. c. p. 54; pl. x. f. i. *Carboniferous*. Airdrie.
L. Russellianus, Binney, l. c. p. 51; pl. ix. f. 1, 2. *Carboniferous*. Airdrie.
L. tenuis, Binney, l. c. p. 53; pl. ix. f. 4. *Carboniferous*. Airdrie.
L. Wuenschianus, Binney, l. c. p. 56; pl. xi. f. 2. *Carboniferous*. Arran.
Sigillaria, Williamson, Proc. Roy. Soc. vol. xix. p. 500.
Stigmaria, Williamson in Proc. Lit. and Phil. Soc. vol. x. p. 116.
S. areolata, Daws. Foss. Pl. Canada, p. 23; pl. iii. f. 33. *Devonian*. Gaspe.
S. minutissima, Daws. l. c. p. 23; pl. iii. f. 34. *Devonian*. Gaspe.
S. perlata, Daws. l. c. p. 22; pl. iii. f. 32. *Devonian*. St. John.
S. stellata, Eichw.; Thomson, GEOL. MAG. Vol. VIII. p. 236. *Carboniferous*. Lanarkshire.
- CYCADEÆ.
Paleozamia megaphylla, Phillips, Geol. Oxford, p. 169; diag. xxx. f. 1. *Oolite*. Stonesfield.
- Pterophyllum Buckmanni*, Phillips, Geol. Oxford, p. 170. *Oolite*. Sevenhampton.
- CONIFERÆ.
Antholites floridus, Daws. Foss. Pl. Canada, p. 63; pl. xix. f. 236. No locality.
Araucarites sphaerocarpus, Carr. GEOL. MAG. Vol. VIII. p. 542. *Oolite*. Bruton, Somersetshire.
Brachyphyllum solitarium, Phillips, Geol. Oxford, p. 120. *Lias*. Bidford.
Cardiocarpon ovale, Daws. Foss. Pl. Canada, p. 60; pl. xx. f. 223, 224. *Devonian*. St. John.
Carpolithes compactus, Daws. Foss. Pl. Canada, p. 63; pl. xix. f. 229. *Devonian*. St. John.
Dadoxylon Neuberryi, Daws. Foss. Pl. Canada, p. 14; pl. i. f. 7-9. *Devonian*. Ohio.
Ormozylon erianum, Daws. Foss. Pl. Canada, p. 14; pl. i. f. 10-14. *Devonian*. New York.
Pinites dejectus, Carr. GEOL. MAG. Vol. VIII. p. 541. *Kimmeridge Clay*. Kimmeridge.
P. hexagonus, Carr. GEOL. MAG. Vol. VIII. p. 540; Pl. XV. *Gault*. Folkestone.
Sequoiites ovalis, Carr. GEOL. MAG. Vol. VIII. p. 541. *Gault*. Folkestone.
Trigonocarpum perantiquum, Daws. Foss. Pl. Canada, p. 62; pl. xix. f. 228. *Devonian*. St. John.
- INCERTÆ SEDIS.
Brees eulassioides, Lloyd; Phillips, Geol. Oxford, p. 95. *Permian*. Meriden.
Carpolithes plenus, Phillips, Geol. Oxford, p. 300; pl. xiii. f. 1, 2. *Coralline Oolite*. Marcham.
Naggethitha Gilboensis, Daws. Quart. Journ. Geol. Soc. vol. xxvii. p. 273; pl. xii. f. 8. *Devonian*. Gilboa. It is impossible to determine what this fragment is, and it is to be regretted that it has received a specific name.
- EXCLUDED.
Carpolithes permianus, Gein.; Carruthers, Quart. Journ. Geol. Soc. vol. xxvii. p. 446.
C. umbonatus, Sternb.; Carruthers, Quart. Journ. Geol. Soc. vol. xxvii. p. 446; pl. xix. f. 12-17.

REPORTS AND PROCEEDINGS.

GEOLOGICAL SOCIETY OF LONDON.—I.—June 5, 1872.—J. Gwyn Jeffreys, Esq., F.R.S., in the Chair.—The following communications were read:—1. "Notes on Sand-pits, Mud-volcanoes, and Brine-pits, met with during the Yarkand Expedition of 1870." By George Henderson, M.D., F.L.S. Communicated by R. Etheridge, Esq., F.R.S., F.G.S.

The author described some very remarkable circular pits which occurred chiefly in the valley of the Karakash river. These pits