

THE  
QUARTERLY JOURNAL  
OF THE  
GEOLOGICAL SOCIETY OF LONDON.

EDITED BY  
THE ASSISTANT-SECRETARY OF THE GEOLOGICAL SOCIETY.

---

Quod si cui mortalium cordi et curae sit non tantum inventis hærere, atque iis uti, sed ad ulteriora penetrare; atque non disputando adversarium, sed opere naturam vincere; denique non belle et probabiliter opinari, sed certo et ostensive scire; tales, tanquam veri scientiarum filii, nobis (si videbitur) se adjungant  
—*Novum Organum, Praefatio.*

---

VOLUME THE TWENTY-FIFTH.

1869.

---

PART THE FIRST.  
PROCEEDINGS OF THE GEOLOGICAL SOCIETY.

---

LONDON :  
LONGMANS, GREEN, READER, AND DYER.  
PARIS: FRIED. KLINCKSIECK, 11 RUE DE LILLE; F. SAVY, 24 RUE HAUTEFEUILLE.  
LEIPZIG: T. O. WEIGEL.  
SOLD ALSO AT THE APARTMENTS OF THE SOCIETY.

MDCCLXIX.

List  
OF THE  
OFFICERS  
OF THE  
GEOLOGICAL SOCIETY OF LONDON.

~~~~~  
Elected February 19, 1869.  
~~~~~

President.

Professor T. H. Huxley, LL.D., F.R.S.

Vice-Presidents.

Sir P. de M. G. Egerton, Bart., M.P., F.R.S.	Warington W. Smyth, Esq., M.A., F.R.S.
Sir R. I. Murchison, Bart., K.C.B., F.R.S.	Rev. T. Wiltshire, M.A., F.L.S.

Secretaries.

P. Martin Duncan, M.B. Lond., F.R.S.	John Evans, Esq., F.R.S., F.S.A.
--------------------------------------	----------------------------------

Foreign Secretary.

Prof. D. T. Ansted, M.A., F.R.S.

Treasurer.

J. Gwyn Jeffreys, Esq., F.R.S.

COUNCIL.

Prof. D. T. Ansted, M.A., F.R.S.	Sir Charles Lyell, Bart., D.C.L., F.R.S.
W. Boyd Dawkins, Esq., M.A., F.R.S.	John Carrick Moore, Esq., M.A., F.R.S.
P. Martin Duncan, M.B. Lond., F.R.S.	Prof. John Morris.
Sir P. de M. G. Egerton, Bart., M.P., F.R.S.	Sir R. I. Murchison, Bart., K.C.B., F.R.S.
John Evans, Esq., F.R.S., F.S.A.	Joseph Prestwich, Esq., F.R.S.
J. Wickham Flower, Esq.	Earl of Selkirk, F.R.S.
David Forbes, Esq., F.R.S.	Warington W. Smyth, Esq., M.A., F.R.S.
R. A. C. Godwin-Austen, F.R.S.	Alfred Tylor, Esq., F.L.S.
Harvey B. Holl, M.D.	Rev. Thomas Wiltshire, M.A., F.L.S.
Prof. T. H. Huxley, LL.D., F.R.S.	Searles V. Wood, jun., Esq.
J. Gwyn Jeffreys, Esq., F.R.S. & L.S.	Henry Woodward, Esq., F.Z.S.
Prof. T. Rupert Jones.	

Assistant-Secretary, Librarian, and Curator.

W. S. Dallas, Esq., F.L.S.

Clerk.

Mr. W. W. Leighton.

Library Assistant.

Mr. F. H. Waterhouse.

## TABLE OF CONTENTS.

---

### PART I.—ORIGINAL COMMUNICATIONS.

	<i>Page</i>
ADAMS, F. O., Esq. On the Coal-mines at Kaianoma, in the Island of Yezo. [Abstract.] .....	254
BAILY, W. H., Esq. Notes on Graptolites and allied Fossils occurring in Ireland .....	158
—. Notice of Plant-remains from Beds interstratified with the Basalt in the County of Antrim. (With 2 Plates.) .....	162, 357
BAUERMAN, H., Esq. Note on a Geological Reconnaissance made in Arabia Petreea in the Spring of 1868. (With 1 Plate.) .....	17
BAUERMAN, H., Esq., and Dr. C. LE NEVE FOSTER. On the Occurrence of Celestine in the Nummulitic Limestone of Egypt .....	40
BEOR, E. J., Esq. On the Lignite-mines of Podernuovo, near Volterra. [Abstract.] .....	260
BLANFORD, W. T., Esq. On the Geology of a portion of Abyssinia .....	401
BRISTOW, H. W., Esq., and W. WHITAKER, Esq. On the Formation of the Chesil Bank. [Title only.] .....	305
BRODIE, Rev. P. B. On the Occurrence of Remains of <i>Eurypterus</i> and <i>Pterygotus</i> in the Upper Silurian Rocks in Herefordshire ..	235
BROWNE, G. M., Esq. On Floods in the Island of Bequia. [Abstract.] .....	12
CARRUTHERS, W., Esq. On the Structure and Affinities of <i>Sigillaria</i> and allied Genera. (With 1 Plate.) .....	248
CLARK, G. T., Esq. Remarks on the Basalt Dykes of the Mainland of India, opposite to the Islands of Bombay and Salsette .....	163
COQUAND, Prof. H. The Cretaceous Strata of England and the North of France compared with those of the West, South-west, and South of France, and the North of Africa .....	237
DAVIDSON, T., Esq. On <i>Terebratula diphya</i> , &c. ....	306
DAWKINS, W. BOYD, Esq. On the Distribution of the British Post-glacial Mammals .....	192
DAWSON, Prof. J. W. On the Graphite of the Laurentian of Canada. [Abstract.] .....	406
DUNCAN, Dr. P. MARTIN. Note on the Echinodermata, Bivalve Mollusca, and some other Fossil Species from the Cretaceous Rocks of Sinai .....	44

## TABLE OF CONTENTS.

	Page
DUNCAN, Dr. P. MARTIN. On the Anatomy of the Test of <i>Amphidetus (Echinocardium) virginianus</i> , Forbes; and on the Genus <i>Breynia</i> . [Abstract.] . . . . .	16
DU NOYER, G. V., Esq. On Flint Flakes from Carrickfergus and Larne. [Abridged.] . . . . .	48
EGERTON, Sir P. DE M. GREY. On two new Species of <i>Gyrodus</i> . . . . .	379
FLOWER, J. W., Esq. On the Distribution of Flint Implements in the Drift, with reference to some recent Discoveries in Norfolk and Suffolk (With 1 Plate.) . . . . .	272, 449
FOSTER, Dr. C. LE NEVE. On the Caratal Gold-field. [Abridged.] . . . . .	336
FOSTER, Dr. C. LE NEVE, and H. BAUERMAN, Esq. On the Occurrence of Celestine in the Nummulitic Limestone of Egypt . . . . .	40
GRANTHAM, R. B., Esq. A Description of the "Broads" of East Norfolk, showing their Origin, Position, and Formation in the Valleys of the Rivers Bure, Yare, and Waveney. [Abridged.] . . . . .	258
HARMER, F. W., Esq., and SEARLES V. WOOD, Jun., Esq. On a peculiar Instance of Intraglacial Erosion near Norwich . . . . .	259, 445
HICKS, H., Esq., and J. W. SALTER, Esq. On some Fossils from the "Menevian Group." (With 2 Plates.) . . . . .	51
HULKE, J. W., Esq. Note on a large Saurian Humerus from the Kimmeridge Clay of the Dorset Coast. (With 1 Plate.) . . . . .	386
—. Notes on some Fossil Remains of a Gavial-like Saurian from Kimmeridge Bay, collected by J. C. Mansel, Esq., establishing its identity with Cuvier's <i>Deuxième Gavial d'Honfleur, Tête à museau plus court (Steneosaurus rostro-minor)</i> of Geoffroy St.-Hilaire) and with Quenstedt's <i>Dakosaurus</i> . (With 2 Plates.) . . . . .	390
HULL, E., Esq. On the Evidences of a Ridge of Lower Carboniferous Rocks crossing the Plain of Cheshire beneath the Trias, and forming the Boundary between the Permian Rocks of the Lancashire Type on the North, and those of the Salopian Type on the South . . . . .	171
HUTTON, Capt. F. W. Description of Nga Tutura, an extinct Volcano in New Zealand . . . . .	13
HUXLEY, Prof. T. H. On <i>Hyperodapedon</i> . . . . .	188
—. On a New Labyrinthodont from Bradford. (With 1 Plate.) . . . . .	309
—. On the Upper Jaw of <i>Megalosaurus</i> . (With 1 Plate.) . . . . .	311
JOASS, Rev. J. M. Notes on the Sutherland Gold-field. (With 1 Plate.) . . . . .	314
JONES, Prof. T. RUPERT. Notes on some Specimens of Nummulitic Rocks from Arabia and Egypt . . . . .	38
KING, Prof. W., and Dr. T. H. ROWNEY. On the so-called "Eozonal" Rock. [Abstract.] . . . . .	115

## TABLE OF CONTENTS.

v

	Page
KINGSMILL, T. W., Esq. Notes on the Geology of China, with more especial Reference to the Provinces of the Lower Yangtse . . . . .	119
MACKINTOSH, D., Esq. Notes on Apparent Lithodomous Perforations in North-west Lancashire. [Abridged.] . . . . .	280
———. On the Correlation, Nature, and Origin of the Drifts of North-west Lancashire and a part of Cumberland, with Remarks on Denudation . . . . .	407
MARTINS, M. C. On the Existence during the Quaternary Period of a Glacier of the Second Order occupying the "Cirque" of the Valley of Palhères, in the western part of the Granitic "Massif" of the Lozère. [Abstract.] . . . . .	46
MASON, J. WOOD, Esq. On <i>Dakosaurus</i> from the Kimmeridge Clay of Shotover Hill . . . . .	15, 218
———. On a new Acrodont Saurian from the Lower Chalk. (With 1 Plate.) . . . . .	442
MIALL, L. C., Esq. On the Locality of <i>Pholidoperpeton</i> . [Abridged.] . . . . .	310
MORGANS, M., Esq. On a Peculiarity of the Brendon Hills Spathose-Iron-ore veins. [Abridged.] . . . . .	255
MURCHISON, Sir R. I. Note comparing the Geological Structure of North-western Siberia with that of Russia in Europe . . . . .	1
———. On the Sutherland Gold-field . . . . .	314
MURPHY, J. J., Esq. On the Nature and Cause of the Glacial Climate . . . . .	350
NICHOLSON, Dr. H. A. Notes on certain of the Intrusive Igneous Rocks of the Lake-district . . . . .	435
NICOL, Prof. JAMES. On the Parallel Roads of Glen Roy . . . . .	282
ORMEROD, G. W., Esq. On the "Waterstone Beds" of the Keuper, containing Pseudomorphous Crystals of Chloride of Sodium, in the counties of Somerset and Devon . . . . .	50
———. On some of the Results arising from the Bedding, Joints, and Spheroidal Structure of the Granite of the Eastern side of Dartmoor, Devonshire . . . . .	273
RATTRAY, Dr. ALEXANDER. Notes on the Geology of Cape-York Peninsula, Australia . . . . .	297
ROGERS, ALEXANDER, Esq. On the Geology of the Country surrounding the Gulf of Cambay. [Abstract.] . . . . .	441
ROWNEY, Dr. T. H., and Prof. W. KING. On the so-called "Eozonal" Rock. [Abstract.] . . . . .	115
RUSCHHAUPT, Dr. F. On the Salt-mines of St. Domingo. [Abridged.] . . . . .	256
SALTER, J. W., Esq., and H. HICKS, Esq. On some Fossils from the "Menevian Group." (With 2 Plates.) . . . . .	51
SANDBERGER, Dr. F. On a Section of a Well at Kissingen. [Abstract.] . . . . .	4

## TABLE OF CONTENTS.

	Page
SANFORD, W. A., Esq. Rodentia of the Somerset Caves. [Abstract.] .....	444
SCUDDER, S. H., Esq. On the Fossil Myriopods of the Coal Formations of Nova Scotia and England. [Abstract.] .....	441
SUTHERLAND, Dr. Note on the Auriferous Rocks of South-eastern Africa .....	169
TATE, Ralph, Esq. Notes on the Geology of Guyana, in Venezuela .....	343
TAWNEY, E., Esq. On the Occurrence of <i>Terebratula diphya</i> in the Alps of the Canton de Vaud .....	305
TYLOR, A., Esq. On the Formation of Deltas, and on the Evidence and Cause of great Changes in the Sea-level during the Glacial Period. [Abstract.] .....	7
_____. On Quaternary Gravels. (With 6 Plates.) .....	57
ULRICH, Dr. G. H. F. Observations on the "Nuggety Reef," Mount-Tarrangower Gold-field .....	326
WALLBRIDGE, T. C., Esq. On the Geology and Mineralogy of the County of Hastings, Canada West .....	261
WARD, J. CLIFTON, Esq. On Beds of supposed Rothliegende Age, near Knaresborough .....	291
WHITAKER, W., Esq. On the Succession of Beds in the "New Red" on the South Coast of Devon, and on the Locality of a New Specimen of <i>Hyperodapedon</i> .....	152
_____. On a Raised Beach at Portland Bill, Dorset. [Title only.] .....	305
_____. On the Connexion of the Geological Structure and Physical Features of the South-east of England with the Consumption Death-rate. [Abstract.] .....	431
WHITAKER, W., Esq., and H. W. BRISTOW, Esq. On the Formation of the Chesil Bank. [Title only.] .....	305
WILLIAMSON, Rev. C. G. On the Volcanic Phenomena of Hawaii. [Abstract.] .....	432
WILTSHERE, Rev. T. On the Red Chalk of Hunstanton .....	185
WOOD, SEARLES V., Jun., Esq., and F. W. HARMER, Esq. On a peculiar Instance of Intraglacial Erosion near Norwich ..	259, 445
 _____	
Annual Report .....	i
Anniversary Address .....	xxviii
List of Foreign Members .....	xviii
List of Foreign Correspondents .....	xix
List of Wollaston Medallists .....	xx
Donations to the Library (with Bibliography) ..	viii, 101, 221, 363, 461

## LIST OF THE FOSSILS FIGURED AND DESCRIBED IN THIS VOLUME.

[In this list, those fossils the names of which are printed in Roman type have been previously described.]

Name of Species.	Formation.	Locality.	Page.
------------------	------------	-----------	-------

### PLANTÆ.

<i>Pinus Plutonis.</i> Pl. xv. f. 1 & 2 ...	Miocene?	Antrim.....	{ 360 361 361
<i>Sequoia Du Noyerii.</i> Pl. xv. f. 4 ...			
<i>Cupressites MacHenrii.</i> Pl. xv. f. 5			

### MOLLUSCA.

(*Brachiopoda.*)

<i>Terebratula diphyoides</i> .....	Cretaceous .....	Ardèche .....	307
-------------------------------------	------------------	---------------	-----

### ANNULOSA.

(*Crustacea.*)

<i>Conocoryphe bufo.</i> Pl. ii. f. 8 .....	Silurian .....	{ St. David's .....	52
<i>— applanata.</i> Pl. ii. f. 1, 2, 3, 4			53
& 5 .....			
<i>— ? humerosa.</i> Pl. ii. f. 7 .....			54
<i>Paradoxides Aurora.</i> Pl. ii. f. 9-12			54
<i>— Hicksii.</i> Pl. iii. f. 1-10 .....		{ St. David's .....	55

### VERTEBRATA.

(*Pisces.*)

<i>Gyrodus Goweri</i> .....	Middle Oolite ...	Sutherland .....	379
<i>— coccoderma</i> .....	KimmeridgeClay	Kimmeridge .....	383

(*Batrachia.*)

<i>Pholiderpeton scutigerum.</i> Pl. xi. ...	Coal-measures...	Bradford .....	309
--	------------------	----------------	-----

Name of Species.	Formation.	Locality.	Page.
------------------	------------	-----------	-------

VERTEBRATA (*continued*).

## (Reptilia.)

Dakosaurus, sp. ....	KimmeridgeClay	Shotover Hill .....	218
Hyperodapedon, sp. ....	Trias .....	{ Elgin .....	138
		Warwickshire ...	
		Devonshire .....	
Megalosaurus. Pl. xii. ....	Oolite .....	Stonesfield .....	311
Steneosaurus rostro-minor. Pls.xvii. & xviii. ....	KimmeridgeClay	Kimmeridge .....	390
Acrodontosaurus Gardneri. Pl. xix.	Lower Chalk ...	Folkestone .....	442

## EXPLANATION OF THE PLATES.

---

PLATE	PAGE
I. { PLAN AND SECTIONS, to illustrate Mr. H. Bauerman's Geological Reconnaissance in Arabia Petreea .....	17
II. } MENEVIAN TRILOBITES, to illustrate Messrs. Salter and Hicks's paper.....	
III. } .....	
IV. }	
V. }	
VI. } PLANS AND SECTIONS, to illustrate Mr. A. Tylor's paper on	
VII. } Quaternary Gravels .....	57
VIII. }	
IX. }	
X. { STRUCTURE OF SIGILLARIA, to illustrate Mr. W. Carruthers's paper on that subject .....	248
XI. } PHOLIDERPETON SCUTIGERUM, to illustrate Prof. Huxley's paper on a new Labyrinthodont from Bradford .....	309
XII. } UPPER JAW OF MEGLOSAURUS, to illustrate Prof. Huxley's paper on that subject .....	311
XIII. { MAP OF PARTS OF SUTHERLAND AND CAITHNESS, to illustrate the Rev. J. M. Joass's paper on the Sutherland Gold-field... ..	314
XIV. } FOSSIL PLANTS AND INSECTS, to illustrate Mr. W. H. Baily's paper on Plant-remains from Antrim .....	357
XV. }	
XVI. { LARGE SAURIAN HUMERUS FROM KIMMERIDGE, to illustrate Mr. J. W. Hulke's paper on that subject .....	386
XVII. }	
XVIII. { LOWER JAW, NOSTRIL, AND VERTEBRAE OF STENEOSAURUS, to illustrate Mr. J. W. Hulke's paper on a Gavial-like Saurian from Kimmeridge Bay .....	390
XIX. }	
XIX. { ACRODONTOSAURUS GARDNERI, to illustrate Mr. J. Wood Mason's paper on a new Acrodont Saurian from the Lower Chalk.....	442
XX. }	
XX. { MAP OF NORFOLK RIVERS, to illustrate Mr. J. W. Flower's paper on the Distribution of Flint Implements in the Drift .....	449