

THE  
GEOLOGICAL MAGAZINE:  
OR,  
*Monthly Journal of Geology:*  
WITH WHICH IS INCORPORATED  
“THE GEOLOGIST.”  
NOS. CCCLXVII TO CCCLXXVIII.

EDITED BY  
HENRY WOODWARD, LL.D., F.R.S., PRES.G.S., F.Z.S., F.R.M.S.,  
OF THE BRITISH MUSEUM OF NATURAL HISTORY;  
VICE-PRESIDENT OF THE PALÆONTOGRAPHICAL SOCIETY,  
AND OF THE MALACOLOGICAL SOCIETY ;  
MEMBER OF THE LYCEUM OF NATURAL HISTORY, NEW YORK; AND OF THE AMERICAN PHILOSOPHICAL  
SOCIETY, PHILADELPHIA; HONORARY MEMBER OF THE YORKSHIRE PHILOSOPHICAL SOCIETY;  
OF THE GEOLOGISTS' ASSOCIATION, LONDON; OF THE INSTITUTION OF MINING AND  
METALLURGY, LONDON; OF THE GEOLOGICAL SOCIETIES OF EDINBURGH, GLAS-  
GOW, HALIFAX, LIVERPOOL, AND SOUTH AFRICA; CORRESPONDING MEMBER  
OF THE GEOLOGICAL SOCIETY OF BELGIUM; OF THE IMPERIAL  
SOCIETY OF NATURAL HISTORY OF MOSCOW; OF THE  
NATURAL HISTORY SOCIETY OF MONTREAL;  
AND OF THE MALACOLOGICAL  
SOCIETY OF BELGIUM.

ASSISTED BY  
ROBERT ETHERIDGE, F.R.S. L. & E., F.G.S., F.C.S., &c.  
WILFRID H. HUDLESTON, M.A., F.R.S., V.P.G.S., F.L.S., F.C.S.  
GEORGE J. HINDE, PH.D., F.G.S., &c.  
AND  
HORACE BOLINGBROKE WOODWARD, F.G.S., &c.

NEW SERIES. DECADE IV. VOL. II.  
JANUARY—DECEMBER, 1895.

LONDON:  
MESSRS. DULAU & CO., 37, SOHO SQUARE.  
F. SAVY, 77, BOULEVART ST.-GERMAIN, PARIS.  
1895.

**HERTFORD :**  
**PRINTED BY STEPHEN AUSTIN AND SONS.**

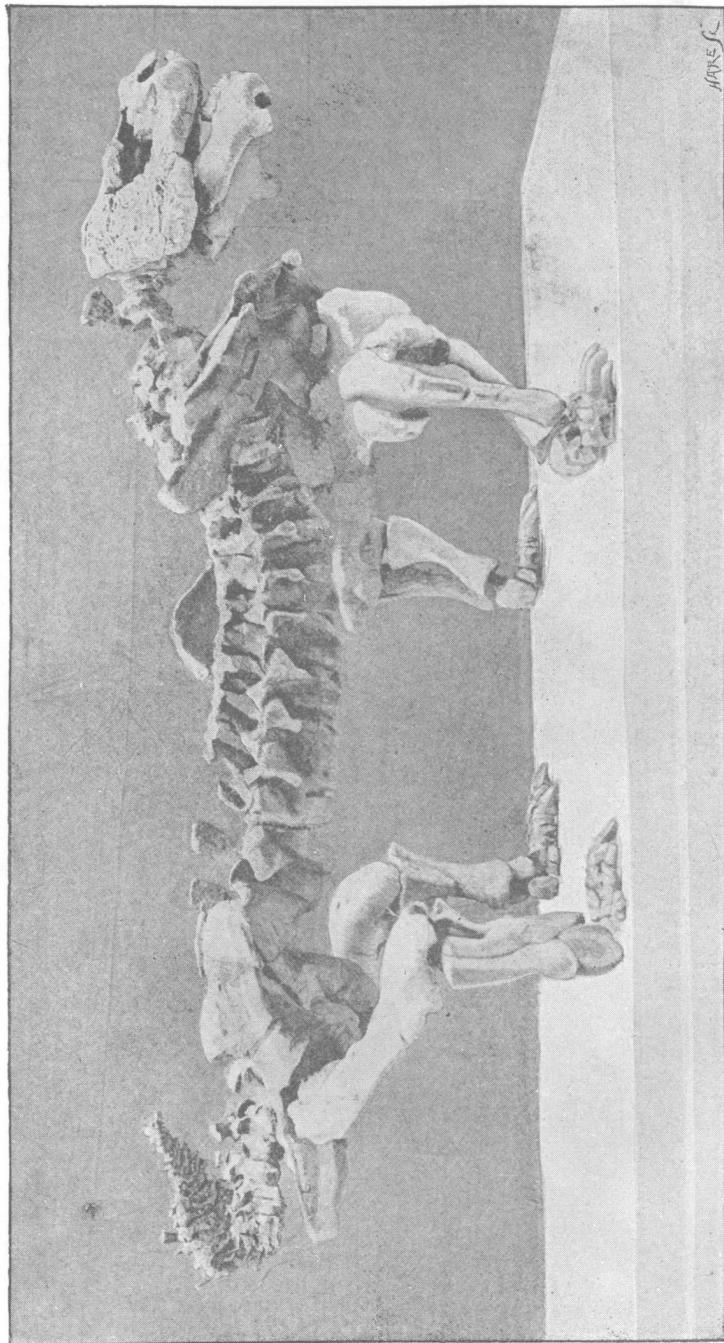
## LIST OF PLATES.

PLATE	FACING PAGE
I. Skeleton of <i>Pareiasaurus Baini</i> , Seeley . . . . .	1
II. Fossil Ostracoda from Canada . . . . .	20
III. New Bala Trilobites . . . . .	49
IV. Evolution of the Brachiopoda . . . . .	65
V. Stages of Generic Development of Brachiopoda . . . . .	103
VI. Fossil Insects from Œningen . . . . .	116
VII. Purbeck Fishes and <i>Osteorachis macrocephalus</i> . . . . .	145
VIII. Cambridge Greensand Ganoids . . . . .	207
IX. Skeleton of a young Plesiosaur from the Oxford Clay . . . . .	241
X. Skeleton of <i>Iguanodon</i> from Bernissart, Belgium . . . . .	289
Portrait of Professor Huxley . . . . .	337
XI. Pitted Pebbles from the Bunter Conglomerate . . . . .	341
XII. <i>Squaloraja</i> and <i>Chimæra</i> . . . . .	385
XIIA. A Restoration of <i>Hyænodon cruentus</i> , Leidy . . . . .	441
XIII. <i>Didymograptus minutus</i> and <i>D. gracilis</i> . . . . .	482
XIV. <i>Phyllograptus angustifolius</i> and <i>Tetragraptus Bigsbyi</i> . . . . .	482
XV. Palaeozoic Phyllopods, etc. . . . .	539

## LIST OF ILLUSTRATIONS IN THE TEXT.

	PAGE
Diagrammatic Map of Dinas Head . . . . .	15
Junction of Greenstone and Soda Rock, Southern Cliff, Dinas Head . . . . .	16
" " " " " . . . . .	17
Section on Western Cliff of Dinas Head . . . . .	17
Section of Soda Rock with Spherulitic Structure from Northern Cliff, Dinas Head . . . . .	18
Skull of <i>Keraterpetum Galvani</i> , Huxley . . . . .	82
Striated Ice-crystals, from Ice-cave, Rhône Glacier . . . . .	156
Section of Ice in Grotto at foot of Obergrindelwald Glacier . . . . .	158
Section of Ice in Ice-cave of Rhône Glacier . . . . .	157
Horizontal Slice, Ice-cave, Obergrindelwald Glacier . . . . .	157
" Section, Obergrindelwald Glacier . . . . .	158
" Slice from Untergrindelwald Glacier . . . . .	158
Vertical Section from the Mer de Glace Glacier . . . . .	158*
Cut showing the Direction in which the Veined Structure runs . . . . .	159
Showing the Conditions of Stress and Strain in a mass of Ice . . . . .	161
Portrait of Dr. J. Whitaker Hulke, F.R.S. . . . .	190
Outlines of Rostra of <i>Protosphyraena</i> . . . . .	213
Mandibular Ramus of Lower Jaw of <i>Phoca rugosidens</i> (Owen) . . . . .	215
Section of Lincolnshire Oolite and Drift at Brigstock . . . . .	224
Bunter Pebble showing Indentations . . . . .	239
Pelvis of Adult <i>Cryptoclidus Oxoniensis</i> . . . . .	243
Shell-Structure of Ammonites . . . . .	251
" " " " " . . . . .	253
Templepatrick Quarry, County Antrim, East End . . . . .	261
" " " " " West , . . . . .	262
Ballypalady Section, Templepatrick . . . . .	263
Libbert Mine Section, Glenarm . . . . .	263
Ideal Section showing probable line of intrusion of Trachyte through Chalk and Lower Basalt . . . . .	264
Ideal Section showing probable position of Pisolithic Iron-ore, Trachyte Gravel, and Upper Basalt over the Trachyte and Lower Basalt . . . . .	264
Skull of <i>Iguanodon Bernissartensis</i> (Boulenger) . . . . .	291
Outer view and profile of Tooth of <i>Iguanodon</i> from the Isle of Wight . . . . .	292
Diagram of Eozoonal Rock at Côte St. Pierre . . . . .	295
Probable Succession at Côte St. Pierre . . . . .	296
Map of the Upper Waters of the Glenderamackin and Caldew . . . . .	300
Radiolarians from the Greensand of Redhill and Reigate . . . . .	346
<i>Trachyceras Aon</i> , Münst. . . . .	392
<i>Ceratites nodosus</i> , De Haan. . . . .	392
<i>Phylloceras heterophyllum</i> , Sow. . . . .	393
<i>Lytoceras fimbriatum</i> , Sow. . . . .	393
<i>Macroscaphites Ivanii</i> , d'Orb. . . . .	393
<i>Hamites elegans</i> , d'Orb. . . . .	394
<i>Turritilites catenatus</i> , d'Orb. . . . .	394
<i>Heteroceras Emerici</i> , d'Orb. . . . .	394

	PAGE
<i>Baculites anceps</i> , Lam. . . . .	395
<i>Cardioceras cordatum</i> , Sow. . . . .	395
<i>Arietites obtusus</i> , Sow. . . . .	396
<i>Ægoceras capricornus</i> , Schloth. . . . .	396
— <i>Davæi</i> , Sow. . . . .	396
<i>Grammoceras serpentinus</i> , Schloth. . . . .	397
<i>Desmoceras ligatum</i> , d'Orb. . . . .	397
<i>Stephanoceras Blagdeni</i> , Sow. . . . .	398
— <i>coronatum</i> , d'Orb. . . . .	398
<i>Cosmoceras Jason</i> , Rein. . . . .	399
<i>Hoplites radiatus</i> , Brug. . . . .	399
<i>Scaphites Hugardianus</i> , d'Orb. . . . .	399
<i>Crioceras Emerici</i> , Léveillé . . . . .	400
<i>Ancyloceras Matheronianum</i> , d'Orb. . . . .	400
Diagram to show Viscous Flow of Glacier-Ice . . . . .	410
"    "    "    "    " . . . . .	412
"    "    "    "    " . . . . .	413
Diagram-map of the Island of Trinidad . . . . .	422
Topography of the immediate area of the Pitch Lake of Trinidad . . . . .	423
Distribution of Grenville Limestone in the district north of Papineauville . . . . .	446
Topography of Côte St. Pierre, from the North-east . . . . .	447
Section in the Valley of Calumet River . . . . .	448
Bent and dislocated Quartzite in Contorted Schists near Montebello . . . . .	448
<i>Tetragraptus Bigsbyi</i> , Hall . . . . .	485
<i>Bryograptus Callavei</i> . . . . .	530
<i>Tetragraptus Hicksii</i> . . . . .	530
<i>Didymograptus affinis</i> . . . . .	530
<i>Bryograptus ramosus</i> . . . . .	530
<i>Tetragraptus fruticosus</i> . . . . .	530
<i>Didymograptus Murchisoni</i> . . . . .	530
<i>Bryograptus retroflexus</i> . . . . .	531
<i>Tetragraptus denticulatus</i> . . . . .	531
<i>Didymograptus fasciculatus</i> . . . . .	531
<i>Dichograptus octonarius</i> . . . . .	532
<i>Tetragraptus serra</i> . . . . .	532
<i>Didymograptus arcuatus</i> . . . . .	532
<i>Tetragraptus crucifer</i> . . . . .	533
<i>Didymograptus pennatulus</i> . . . . .	533
<i>Tetragraptus Headi</i> . . . . .	533
<i>Didymograptus V-fractus</i> . . . . .	533
<i>Dichograptus octobrachiatus</i> . . . . .	534
<i>Tetragraptus Bigsbyi</i> . . . . .	535
<i>Didymograptus gibberulus</i> . . . . .	535
<i>Tetragraptus quadibrachiatus</i> . . . . .	536
<i>Didymograptus extensus</i> . . . . .	536
<i>Tetragraptus approximatus</i> . . . . .	537
<i>Didymograptus nitidus</i> . . . . .	537
Typical Arrangement of Canals, etc. in a Lamina of <i>Eozoon Canadense</i> . . . . .	546
Cross-section of minute Tubuli            ditto            ditto . . . . .	547
Cross-section of Tubuli more highly magnified            ditto . . . . .	547



Skeleton of *Pareiasaurus Baini*, Seeley.

Karoo Formation (Trias), Bad, near Tamboer Fontein, Cape Colony.

The original preserved in the British Museum (Natural History). Length of skeleton 7 feet 9 inches.