

CONTENTS.

	PAGE
I. Memoir of the Society,	1
II. Papers on General Subjects (not being local) read before the Edinburgh Geological Society, from 1862-66,	6
III. Scottish Local Papers read before the Edinr. Geological Society,	7
THIRTY-THIRD ANNUAL GENERAL MEETING, WEDNESDAY, 31ST OCTOBER 1866.	
Opening Address, by DAVID PAGE, F.G.S., F.R.S.E.,	9
THURSDAY, 15TH NOVEMBER 1866.	
I. On the Lower Carboniferous Rocks, exposed in the Excavation for the foundation of the City of Glasgow Bank, Hanover Street. By GEORGE C. HASWELL. (With woodcut Section),	13
II. Communication on Graptolites, with Notice of two species of that Family from the Upper Silurian Strata of the Pentland Hills. By D. J. BROWN. (Title only),	14
III. On the Old Sea Beaches of Loch Etive, and the Agencies by which they have been formed, with Observations on the evidence afforded by Tide-Gauges of the Extent of Elevation or Subsidence of Sea Coast. By RODERICK A. F. A. COYNE. (Title only),	14
CONVERSAZIONE, THURSDAY, 6TH DECEMBER 1866.	
On the Geological Life Periods. By DAVID PAGE, F.G.S., F.R.S.E.,	14
THURSDAY, 20TH DECEMBER 1866.	
I. On the Occurrence of a Submerged Forest at West Hartlepool, and its relation to similar Phenomena along the Eastern Shores of the British Islands. By DAVID PAGE, F.R.S.E., F.G.S. (Title only),	15
II. Exhibition of Carboniferous Fossils from the Coal Fields of Lanarkshire. By JOHN R. S. HUNTER. (Title only),	15
III. On the Occurrence of Fossils in the Old Red Sandstone of Westmoreland. By Dr HENRY ALLEYNE NICHOLSON, D.Sc., M.B., F.G.S.,	15
IV. Notice of <i>Stimonia Acuminata</i> , from the Silurian Rocks of the Pentland Hills. By JOHN HENDERSON,	18
THURSDAY, 17TH JANUARY 1867.	
Lecture in Hall of Museum of Science and Art "On Geological Time." By ARCH. GEIKIE, F.R.S.,	19
THURSDAY, 7TH FEBRUARY 1867.	
I. On the Past, Present, and Future of the Scottish and Welsh Mineral Oil Trades. By ANDREW TAYLOR. (Abstract),	19
II. On the <i>Rhizopoda</i> , and their Importance in various Geological Formations. By J. HENRY CAMPBELL. (Abstract),	20
THURSDAY, 21ST FEBRUARY 1867.	
I. Short Notice of the Shell Heap at Cramond, lately excavated by the direction of the Society. By GEORGE LYON. (Title only),	21
II. Short Notice of three species of Trilobites from the Silurian Beds of the Pentland Hills. By JOHN HENDERSON,	21

	PAGE
III. Notice of the Discovery of Specimens of <i>Strophomena Walmstedii</i> in the Silurian Beds of the Pentland Hills. By D. J. BROWN. (Title only),	23
IV. On the Silurian Rocks of the Pentland Hills. By Messrs D. J. BROWN and JOHN HENDERSON. With Notes on the Brachiopoda. By THOMAS DAVIDSON, F.R.S., F.G.S. (With woodcut Section),	23
FRIDAY, 8TH MARCH 1867.	
I. Geology of the Carboniferous Strata of Carluke. By JOHN R. S. HUNTER. (With lithographed Section, Plate I.),	34
II. Notes on some New Fossils (<i>Eurypterus Scouleri</i> , &c.) from the Tuedian or Passage Beds of Berwickshire. By DAVID PAGE, F.R.S.E., F.G.S. (Title only),	57
III. Notes on the Brachiopoda from the Upper Silurian Rocks of the Pentland Hills. (Illustrated by Specimens.) By THOMAS DAVIDSON, F.G.S., F.R.S. Communicated by JOHN HENDERSON. (Title only),	57
THURSDAY, 21ST MARCH 1867.	
On a New Genus of Graptolites, with Notes on their Reproductive Bodies. By Dr H. ALLEYNE NICHOLSON, D.Sc., M.B., F.G.S., Baxter Scholar in the Natural Sciences of the University of Edinburgh. (Plate II.).	57
THURSDAY, 4TH APRIL 1867.	
I. Notes on the Glaciers of Bute Inlet, British Columbia. By Lieutenant FREDERICK WHYMPER. (Abstract),	65
II. On the Mapping of the Superficial Accumulations. By Dr PAGE,	68
III. On the Age of the Silurian Beds of the Pentland Hills. By GEORGE C. HASWELL. (For Abstract of this Paper, see Part II., p. 200),	68
IV. Notice on the Discovery of a Large Boulder of Greenstone at the South-east Corner of the Meadows. By GEORGE LYON. (Title only),	68
THURSDAY, 18TH APRIL 1867.	
I. On the Geology of the Coasts of Antrim and Londonderry, and on the Age of the Giant's Causeway; being Observations made in the North of Ireland in the Autumns of 1865 and 1866. By T. SMYTH. (With Four Woodcuts),	68
II. On the Glaciation of Loch Skene and surrounding Districts; being a Journey across the Hills from Moffat to Tweedsmuir. By D. J. BROWN,	81
THURSDAY, 2D MAY 1867.	
Closing Address, by the President, "On the Nature of Geological Evidence,"	86
THIRTY-FOURTH ANNUAL GENERAL MEETING, TUESDAY, 5TH NOVEMBER 1867.	
Opening Address. By Dr PAGE, F.G.S., F.R.S.E.,	97
THURSDAY, 21ST NOVEMBER 1867.	
The Gold and Gold-Fields of Scotland. By W. LAUDER LINDSAY, M.D., F.R.S.E.,	105
THURSDAY, 5TH DECEMBER 1867.	
On the Glacial Phenomena of the Pyrenees. By P. W. STUART MENTHATH. (Title only),	115
THURSDAY, 19TH DECEMBER 1867.	
I. On the Valley of the Tay at Perth, with reference to the Surface Formation. Part I. By CHARLES P. NICOLSON, M.A. B.Sc. (Title only),	115

CONTENTS.		V
		PAGE
II. Remarks on two Flints from Jubbulpore, Central India, and on the Flint Implements discovered there by the late Lieut. D. Swiney, R.E. By J. HASWELL, M.A. (For Abstract, see p. 198 of this Vol.),		198
THURSDAY, 16TH JANUARY 1868.		
On the Connection of the Lower, Middle, and Upper Old Red Sandstones of Scotland. By JAMES POWRIE, F.G.S., F.R.S.E., Vice-President,		115
CONVERSAZIONE, THURSDAY, 23D JANUARY 1868.		
Lecture on "Ice Action." By Dr PAGE,		132
THURSDAY, 6TH FEBRUARY 1868.		
On the Granite of Shap, in Westmoreland. By HENRY ALLEYNE NICHOLSON, D.Sc., M.B., F.G.S. Read by CHARLES P. NICOLSON,		133
THURSDAY, 20TH FEBRUARY 1868.		
I. On the Superficial Deposits at the Estuary of the South Esk. By JAMES C. HOWDEN, M.D., Montrose. (Plates III., IV., and V.),		138
II. On the Causes which seem to have led to the Extinction of the New Zealand Moa. By JAMES MELVIN,		150
III. A short Account of the Life and Career of Edward Simpson, commonly known as "Flint Jack." By GEORGE LYON. (Title only),		155
THURSDAY, 5TH MARCH 1868.		
On the Evidences of Glacier Action in Galloway. By WILLIAM JOLLY. (Part I. Plate VI.),		155
THURSDAY, 19TH MARCH 1868.		
On the Evidences of Glacial Action in Galloway. By WILLIAM JOLLY. (Part II. Plate VI.),		171
THURSDAY, 2D APRIL 1868.		
On the Working together of Igneous and Denuding Agencies in the Formation of Scenery. By JAMES POWRIE, F.G.S., Vice-President. (With lithographed Section, Plate VII.),		185
THURSDAY, 16TH APRIL 1868.		
I. Observations on the Miocene Beds of Greenland. By ROBERT BROWN, F.R.G.S., Foreign Corresponding Fellow of the Society. Communicated by James Haswell, M.A.,		194
II. Brief Notes on the Precious Stones and Pearls of Scotland. By ALEX. COCKBURN,		196
III. On the Chemical and other Characteristics of the Geology of the Pyrenees. By P. W. STUART MENTEATH. (Title only),		198
IV. Remarks on Two Flints from Jubbulpore, Central India, exhibited at a Meeting of the Society on 19th December 1867, and on the Flint Implements discovered there by the late Lieut. Downing Swiney, R.E. By JAMES HASWELL, M.A. (Read 19th December 1867. Abstract),		198
V. On the Age of the Silurian Beds of the Pentland Hills. By G. C. HASWELL. (Read 4th April 1867. Abstract),		200
THURSDAY, 7TH MAY 1868.		
Closing Address, by the President, "On the Natural Sciences—Their Place in Education,"		201
Donations to the Library, from Nov. 1862 to Oct. 1868 inclusive,		211
Donations to the Museum, from Nov. 1862 to Oct. 1868 inclusive,		218

	PAGE
Appendix "A." Excerpts from Laws as to the "Objects," "Election of Ordinary Fellows," and "Publication of Transactions" of the Society,	221
THIRTY-FIFTH ANNUAL GENERAL MEETING, THURSDAY, 5TH NOVEMBER 1868.	
Abstract of Proceedings of 35th Annual General Meeting,	221
Abstract of Receipts and Disbursements for 1867-68,	224
THURSDAY, 19TH NOVEMBER 1868.	
Address on "Field Work, its Charms and Instructions," by DAVID PAGE, LL.D. (Excerpt)	225
THURSDAY, 3D DECEMBER 1868.	
Opening Address, by ARCHIBALD GEIKIE, Esq., F.R.S. (Abstract),	226
THURSDAY, 17TH DECEMBER 1868.	
I. Notes on some Fossils from the Oolite of Yorkshire. By JAMES GOWANS. (Title only),	229
II. Remarks on the Family Orthoceratidæ. By G. LYON. (Title only),	229
III. On Columnar Structure developed in Mica Schist from a Vitriified Fort in the Kyles of Bute. By JAMES HASWELL, M.A. Corresp. Mem. California Acad. of Sciences,	229
THURSDAY, 21ST JANUARY 1869.	
I. Obituary Notice of James David Forbes, D.O.L., LL.D., F.R.S., Principal of the United College of St Salvator and St Leonard, in the University of St Andrews, and late Honorary Fellow of the Society. By ARCHIBALD GEIKIE, F.R.S.,	238
II. On the Depth of the Seas in which the Carboniferous Limestone was formed. By ALEX. SOMERVAIL,	249
III. Notice of Certain Concretions found in the Upper Silurian Rocks of Denbighshire, North Wales. By D. W. ROBERTS, M.B., C.M., Fellow of the Botanical Society, Edinburgh,	253
IV. Notice of Recent Fossiliferous Sandstone and Clay at Granton. By JOHN HENDERSON. (With Woodcut Section),	255
V. Notice of Sandstone now in the course of formation at Elie, Fifeshire. By JAMES HASWELL, M.A., Corresp. Mem. California Acad. of Sciences,	259
THURSDAY, 4TH FEBRUARY 1869.	
On the Geology of the Selkirk and Peeblesshire Hills. By R. A. F. A. COYNE, C.E. (Title only),	261
THURSDAY, 18TH FEBRUARY 1869.	
On the Extension of the Coal-Fields of England under the more recent Permian and Triassic Formations. By EDWARD HULL, M.A., F.R.S. (Illustrated by a woodcut of an Ideal Section). (Abstract),	261
THURSDAY, 4TH MARCH 1869.	
Notice of the Death of Lady Murchison. By ARCHIBALD GEIKIE, Esq., F.R.S.E.,	265
I. On the Silurian Rocks of the Pentland Hills. By Messrs JOHN HENDERSON and D. J. BROWN. (Illustrated with Map and two Detailed Sections.—Plate VIII.) Part II. Communicated by JOHN HENDERSON,	266
II. The Fifeshire Gold Diggings of 1852. By W. LAUDER LINDSAY, M.D., F.R.S.E. Communicated by Mr PANTON, Honorary Secretary. (Abstract),	272
III. Preliminary Report on the Sutherlandshire Gold. By W. LAUDER LINDSAY, M.D., F.R.S.E. Communicated by Mr PANTON, Honorary Secretary,	273

CONTENTS.

vii

PAGE

THURSDAY, 18TH MARCH 1869.

- I. Notes on the Geology of Derwentwater, in Cumberland. By HENRY ALLEYNE NICHOLSON, M.D., D.Sc., M.A., F.G.S. (With Ground-plan of Derwentwater, Plate IX., and Woodcut Section.) Communicated by Mr PANTON, Honorary Secretary. 274
- II. Notes on the Geology of Southerness, Kirkcudbrightshire. By WILLIAM JOLLY. (Abstract), 278

THURSDAY, 1ST APRIL 1869.

- On the Earliest known Vestiges of Vertebrate Life; being a Description of the Fish Remains of the Old Red Sandstone Rocks of Forfarshire, By JAMES POWRIE, F.G.S. F.R.S.E. (Illustrated by five quarto Plates, Nos. X. to XIV. inclusive), 284

THURSDAY, 15TH APRIL 1869.

- I. Letter from GEORGE ANDERSON, Inverness, addressed to ARCHIBALD GEIKIE, F.R.S., President of the Society, dated Inverness, 30th March 1869, on "Vitrified Forts, with Description of Craig Phadrich, near Inverness." Communicated by Mr PANTON, Honorary Secretary, 302
- II. On the Geographical Distribution and Physical Characteristics of the Coal-Fields of the North Pacific Coast. By ROBERT BROWN, F.R.G.S., Commander and Government Agent of the First Vancouver Exploring Expedition, Botanist of the British Columbia Expedition, &c., 305
- III. Notes on the Trap-Dykes of Edinburgh and Neighbourhood. By GEORGE LYON. (Abstract), 325

THURSDAY, 6TH MAY 1869.

- I. Notice of the occurrence of "*Actinocrinus pulcher*" (Salt MSS.) in the Upper Silurian Flag of Denbighshire, North Wales, being a new locality for this Encrinurite. By DAVID W. ROBERTS, M.B., C.M. (Illustrated by a lithograph figure of the specimen, Plate XV.), 329
- II. On two River Channels Buried under Drift, belonging to a period when the land stood several hundred feet higher than at present. By JAMES CROLL, of the Geological Survey of Scotland. (Illustrated with map of Midland Valley of Scotland, fig. 1., and relative section, fig. 2, Plate XVI.), 330
- III. On the Discovery of a "Sand-dyke," or Old River Channel running north to south, from near Kirk of Shotts to Wishaw, Lanarkshire. By ROBERT DICK. (Illustrated with map of Midland Valley of Scotland, fig. 1, and relative section, fig. 3, Plate XVI.), 345
- IV. Notes on Chemical Geology. By ANDREW TAYLOR. (Abstract) 352
- V. Closing Address for the Session. By ARCHIBALD GEIKIE, F.R.S., President of the Society. (Abstract), 354

SATURDAY, 5TH JUNE 1869.

- Field-day at Campsie; being Notes on the Joint Excursion of the Edinburgh and Glasgow Geological Societies to Campsie Glen, Dunglass Castle, and the Spout of Ballygan, on Saturday 5th June 1869, 355
- Donations to the Library from Nov. 1868 to Dec. 1869, inclusive, 359
- Donations to the Museum from Nov. 1868 to Dec. 1869, inclusive, 367

- Appendix B.—List of Members corrected to 1st January 1870, i
- Excerpts from Laws as to "Objects," and "Election of Ordinary Fellows," vii

LIST OF PLATES.

I. Section of Strata, Carluke,	To face page 56
II. Graptolites from Dumfriesshire,	64
III. <i>Fig. 1.</i> —Section across the valley of the North Esk. <i>Fig. 2.</i> — Section at Brechin Quarry. <i>Fig. 3.</i> —Section showing de- position of boulder-clay on the south-east slope of the Garvock range. <i>Figs. 4 and 5.</i> —Sections across the valley of the South Esk. <i>Fig. 6.</i> —Section of the peninsula of Montrose. <i>Fig. 7.</i> —Section at Dryley's brick-work. <i>Fig. 8.</i> —Section at Mon- trose gas-work,	138
IV. Map, showing direction of glacial groovings in the valleys of the North and South Esk, Forfarshire,	140
V. Plan of estuary of South Esk,	148
VI. Sketch-Map of Galloway and its glacial remains,	184
VII. Section across the lower range of the Grampians, Strathmore, Sidlaw hills, Carse of Gowrie, to the Fifeshire hills,	192
VIII. Map, and two detailed Sections of Upper Silurian Rocks of Pent- land Hills,	270
IX. Photo-lithograph of Ground-plan of Derwentwater,	276
X. } Lithographed plates of the Old Red Sandstone Fishes of For- to } farshire,	300
XIV. } XV. Lithograph of <i>Actinocrinus pulcher</i> (Salt MSS.), natural size,	330
XVI. <i>Fig. 1.</i> —Map of midland valley of Scotland. <i>Fig. 2.</i> —Section of buried river-bed near Towncroft Farm, Grangemouth; and <i>Fig. 3.</i> —Section at "C" of ravine buried under drift near Wishaw,	350

LIST OF WOOD-CUTS.

I. Section of Lower Carboniferous Rocks, Hanover Street, Edin- burgh,	14
II. Section of Upper Silurian Rocks of Pentland Hills.	24
III. Section across the valley of Glenariff,	73
IV. View of "Lord Antrim's Parlour," Giant's Causeway,	75
V. View of "Giant's Gate," Giant's Causeway,	77
VI. Section of Basaltic Cliffs east of the Giant's Causeway,	79
VII. Section of Strata from Granton Quarry, seaward to Fifth of Forth,	256
VIII. Ideal Section to illustrate the inferred Geological Structure of the Eastern part of England,	264
IX. Section from Portingscale to Castle Crag, in Borrowdale,	276