

No. 345

THE
QUARTERLY JOURNAL
OF THE
GEOLOGICAL SOCIETY
OF LONDON

EDITED BY
THE ASSISTANT SECRETARY

VOLUME LXXXVII, PART I
(ISSUED FEBRUARY 28th, 1931)

LONDON:
LONGMANS, GREEN & CO. LTD.
PARIS:—CHARLES KLINCKSIECK, 11 RUE DE LILLE
SOLD ALSO AT THE APARTMENTS OF THE SOCIETY

Price Seven Shillings and Sixpence

GEOLOGICAL SOCIETY OF LONDON

LIST OF THE OFFICERS AND COUNCIL

Elected February 20th, 1931

PRESIDENT

Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S.

VICE-PRESIDENTS

John Frederick Norman Green, B.A. Prof. John Walter Gregory, LL.D., D.Sc., F.R.S.	Herbert Henry Thomas, M.A., Sc.D., F.R.S. Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S.
---	---

SECRETARIES

Walter Campbell Smith, M.C., T.D., M.A.	Prof. William Thomas Gordon, M.A., D.Sc., F.R.S.E.
--	---

FOREIGN SECRETARY

Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.

TREASURER

Frederick Noel Ashcroft, M.A., F.C.S.

COUNCIL

Frederick Noel Ashcroft, M.A., F.C.S. Prof. Percy George Hamnall Boswell, D.Sc., A.R.C.S., D.I.C. Prof. Charles Gilbert Cullis, D.Sc. Sir John Smith Flett, K.B.E., M.A., LL.D., D.Sc., F.R.S.L. & E. Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S. Prof. Albert Gilligan, D.Sc., B.Sc. Prof. William Thomas Gordon, M.A., D.Sc., F.R.S.E. John Frederick Norman Green, B.A. Prof. John Walter Gregory, LL.D., D.Sc., F.R.S. Leonard Hawkes, D.Sc. Charles William Hobley, C.M.G. Prof. Owen Thomas Jones, M.A., D.Sc., F.R.S.	Sir Albert Ernest Kitson, C.M.G., C.B.E. Emil Montag, M.Sc. Bernard Smith, M.A., Sc.D. Walter Campbell Smith, M.C., T.D., M.A. Leonard Frank Spath, D.Sc. Prof. Henry Hurd Swinnerton, D.Sc. Herbert Henry Thomas, M.A., Sc.D., F.R.S. Cecil Edgar Tilley, Ph.D., B.Sc., A.I.C. Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S. Leonard Johnston Wills, M.A., Sc.D., Ph.D. Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.
--	---

ASSISTANT SECRETARY AND EDITOR

Arthur Greig

LIBRARIAN

Norman Ernest Pettitt

CLERK

Miss E. L. Greig

LIBRARY ASSISTANT

Miss E. D. Eastwood

ORDINARY MEETINGS OF THE GEOLOGICAL SOCIETY TO BE HELD AT BURLINGTON HOUSE

SESSION 1930-1931.

1931.

Wednesday, March 4* & 18*
,,	April 1 & 22*
,,	May 6* & 20
,,	June 3* & 17*

[Asterisks denote the days on which the Council will meet.]

PUBLICATIONS ON SALE FROM THE GEOLOGICAL SOCIETY



QUARTERLY JOURNAL, Vols. III to LXXXVI inclusive. Price £1 10s. per volume (unbound), to Fellows £1. Separate parts, price 7s. 6d. each, to Fellows 5s. Postage extra. Certain parts are out of print, and others, on account of their scarcity, available only at enhanced prices. The numbers and prices of these parts can be obtained at the Society's office.

GENERAL INDEX TO THE FIRST FIFTY VOLUMES OF THE QUARTERLY JOURNAL (1845-94). Part I (A-La), Part II (La-Z). Price 7s. 6d. each, to Fellows 5s. Postage extra.

GEOLOGICAL LITERATURE added to the Geological Society's Library during the years ended December 31st, 1894-1914, 1920-24. Price 5s. each, to Fellows 3s. 9d. Postage extra. Geological Literature for 1915-19 (in one volume), 1926-30. Price 10s. each, to Fellows 7s. 6d. Postage extra.

HISTORY OF THE GEOLOGICAL SOCIETY OF LONDON. By H. B. WOODWARD, F.R.S. 8vo, London, 1907. Price 3s. Postage extra.

CONTENTS

	PAGE
1. R. W. POCOCK. The Age of the Midland Basalts. (Plate I) .	1
2. T. ROBERTSON. The Origin of the Etruria Marl. (Plate II) .	13
3. T. N. GEORGE. <i>Ambocœlia</i> Hall and certain Similar British Spiriferidæ. (Plates III-V)	30
4. A. W. GROVES. The Unroofing of the Dartmoor Granite and the Distribution of its Detritus in the Sediments of Southern England. (Plate VI)	62
5. E. J. GARWOOD. The Tuedian Beds of Northern Cumberland and Roxburghshire East of the Liddel Water. (Plates VII-XVI)	97
6. EMILY DIX. The Flora of the Upper Portion of the Coal Measures of North Staffordshire	160

The Editor of the Quarterly Journal is directed to make it known to the Public that the Authors alone are responsible for the facts and opinions contained in their respective papers, and for the correctness of their references.

Authors desirous of communicating papers to the Society will be supplied, on application to the Assistant Secretary, with a copy of 'Instructions to Authors', issued by the Council on the recommendation of the Publication Committee.

The Society's Library is open every week-day from 10 o'clock until 5, except on Saturdays, when the hours are from 10 o'clock until 1.

No. 346

THE
QUARTERLY JOURNAL
OF THE
GEOLOGICAL SOCIETY
OF LONDON

EDITED BY
THE ASSISTANT SECRETARY

VOLUME LXXXVII, PART 2
(ISSUED MAY 29TH, 1931)

LONDON :
LONGMANS, GREEN & CO. LTD.
PARIS:—CHARLES KLINCKSIECK, 11 RUE DE LILLE
SOLD ALSO AT THE APARTMENTS OF THE SOCIETY

Price Seven Shillings and Sixpence

GEOLOGICAL SOCIETY OF LONDON

LIST OF THE OFFICERS AND COUNCIL

Elected February 20th, 1931

PRESIDENT

Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S.

VICE-PRESIDENTS

John Frederick Norman Green, B.A. Prof. John Walter Gregory, LL.D., D.Sc., F.R.S.	Herbert Henry Thomas, M.A., Sc.D., F.R.S. Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S.
---	---

SECRETARIES

Walter Campbell Smith, M.C., T.D., M.A.	Prof. William Thomas Gordon, M.A., D.Sc., F.R.S.E.
--	---

FOREIGN SECRETARY

Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.

TREASURER

Frederick Noel Ashcroft, M.A., F.C.S

COUNCIL

Frederick Noel Ashcroft, M.A., F.C.S. Prof. Percy George Hamnall Boswell, D.Sc., F.R.S., A.R.C.S., D.I.C. Prof. Charles Gilbert Cullis, D.Sc. Sir John Smith Flett, K.B.E., M.A., LL.D., D.Sc., F.R.S.L. & E. Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S. Prof. Albert Gilligan, D.Sc., B.Sc. Prof. William Thomas Gordon, M.A., D.Sc., F.R.S.E. John Frederick Norman Green, B.A. Prof. John Walter Gregory, LL.D., D.Sc., F.R.S. Leonard Hawkes, D.Sc. Charles William Hobley, C.M.G. Prof. Owen Thomas Jones, M.A., D.Sc., F.R.S.	Sir Albert Ernest Kitson, C.M.G., C.B.E. Emil Montag, M.Sc. Bernard Smith, M.A., Sc.D. Walter Campbell Smith, M.C., T.D., M.A. Leonard Frank Spath, D.Sc. Prof. Henry Hurd Swinnerton, D.Sc. Herbert Henry Thomas, M.A., Sc.D., F.R.S. Cecil Edgar Tilley, Ph.D., B.Sc., A.I.C. Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S. Leonard Johnston Wills, M.A., Sc.D., Ph.D. Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.
--	---

ASSISTANT SECRETARY AND EDITOR

Arthur Greig

LIBRARIAN

Norman Ernest Pettitt

CLERK

Miss M. S. Coke

LIBRARY ASSISTANT

Miss E. D. Eastwood

PUBLICATION COMMITTEE

Prof. E. J. Garwood, *President*

Mr. W. Campbell Smith } Prof. W. T. Gordon }	} <i>Secretaries</i>	Mr. F. N. Ashcroft, <i>Treasurer</i>
---	----------------------	--------------------------------------

Prof. P. G. H. Boswell
 Sir John S. Flett
 Prof. J. W. Gregory
 Prof. H. H. Swinnerton

Dr. H. H. Thomas
 Prof. W. W. Watts
 Sir Arthur Smith Woodward

FROM MURBY'S LIST

Professor Shand's New Book

THE STUDY OF ROCKS. By S. J. SHAND, D.Sc., Ph.D., F.G.S., Professor of Geology, University of Stellenbosch. 6s. net, postage 6d.

This is a book for students who have already made a beginning with elementary geology and who wish to make a closer study of the nature and composition of rocks. The vexed question of the classification of eruptive rocks is discussed in a chapter which may be read with profit by more advanced students, for it gives an outline of no less than ten systems which are in use at the present day.

INSTRUCTIONS FOR USING THE QUANTITATIVE MINERALOGICAL CLASSIFICATION OF ERUPTIVE ROCKS. By Prof. S. J. SHAND.

1s. 3d. net, postage 1d. Explains the application of the classification proposed in Professor Shand's larger work :—

ERUPTIVE ROCKS. Their Genesis, Composition, Classification and their Relation to Ore Deposits. By Prof. S. J. SHAND. 44 illustrations. 20s. net, postage 9d.

THE JAPANESE EARTHQUAKE OF 1923. By C. DAVISON, D.Sc., F.G.S., author of *A History of British Earthquakes, Founders of Seismology, Manual of Seismology*, etc. Describes the great Japanese disaster and deals with this earthquake as a geological event in the history of the earth. 40 diagrams. 7s. 6d. net, postage 6d.

The late Dr. Barker's Last Two Books

THE STUDY OF CRYSTALS : A general Introduction. By the late Dr. T. V. BARKER. 8s. 6d. net, postage 6d.

SYSTEMATIC CRYSTALLOGRAPHY. An Essay on Crystal Description, Classification and Identification. By the late Dr. T. V. BARKER. 7s. 6d. net, postage 6d.

"This highly important essay deserves close study by all workers in this field."—*Prof. A. Hutchinson in "The Times."*

THOS. MURBY & CO., 1 FLEET LANE, LONDON, E.C.4

PUBLICATIONS ON SALE FROM THE GEOLOGICAL SOCIETY



QUARTERLY JOURNAL, Vols. III to LXXXVI inclusive. Price £1 10s. per volume (unbound), to Fellows £1. Separate parts, price 7s. 6d. each, to Fellows 5s. Postage extra. Certain parts are out of print, and others, on account of their scarcity, available only at enhanced prices. The numbers and prices of these parts can be obtained at the Society's office.

GENERAL INDEX TO THE FIRST FIFTY VOLUMES OF THE QUARTERLY JOURNAL (1845–94). Part I (A-La), Part II (La-Z). Price 7s. 6d. each, to Fellows 5s. Postage extra.

GEOLOGICAL LITERATURE added to the Geological Society's Library during the years ended December 31st, 1894–1914, 1920–24. Price 5s. each, to Fellows 3s. 9d. Postage extra. Geological Literature for 1915–19 (in one volume), 1926–30. Price 10s. each, to Fellows 7s. 6d. Postage extra.

HISTORY OF THE GEOLOGICAL SOCIETY OF LONDON. By H. B. WOODWARD, F.R.S. 8vo, London, 1907. Price 3s. Postage extra.

ORDINARY MEETINGS OF THE GEOLOGICAL SOCIETY TO BE HELD AT BURLINGTON HOUSE

SESSION 1930–1931.

1931.

Wednesday, June 3* & 17*

[Asterisks denote the days on which the Council will meet.]

CONTENTS

	PAGE
7. EMILY DIX and A. E. TRUEMAN. Some Non-Marine Lamelli- branches from the Upper Part of the Coal Measures. (Plate XVII)	180
8. W. CAMPBELL SMITH. A Classification of some Rhyolites, Trachytes, and Phonolites from part of Kenya Colony, with a Note on some Associated Basaltic Rocks. (Plates XVIII & XIX)	212
9. C. BARRINGTON BROWN. The Geology of North-Eastern British Somaliland. (Plates XX-XXV)	259
10. S. E. HOLLINGWORTH. The Glaciation of Western Edenside and Adjoining Areas, and the Drumlins of Edenside and the Solway Basin. (Plates XXVI-XXVIII)	281
11. H. H. SWINNERTON. The Post-Glacial Deposits of the Lincolnshire Coast. (Plates XXIX & XXX)	360
Proceedings of the Geological Society of London, Session 1930-31	i-lxiv

The Editor of the Quarterly Journal is directed to make it known to the Public that the Authors alone are responsible for the facts and opinions contained in their respective papers, and for the correctness of their references.

Authors desirous of communicating papers to the Society will be supplied, on application to the Assistant Secretary, with a copy of 'Instructions to Authors', issued by the Council on the recommendation of the Publication Committee.

The Society's Library is open every week-day from 10 o'clock until 5, except on Saturdays, when the hours are from 10 o'clock until 1.

No. 347

THE
QUARTERLY JOURNAL
OF THE
GEOLOGICAL SOCIETY
LONDON

EDITED BY
THE ASSISTANT SECRETARY

VOLUME LXXXVII, PART 3
(ISSUED AUGUST 25TH, 1931)

LONDON :
LONGMANS, GREEN & CO. LTD.
PARIS :—CHARLES KLINCKSIECK, 11 RUE DE LILLE
SOLD ALSO AT THE APARTMENTS OF THE SOCIETY

Price Seven Shillings and Sixpence

GEOLOGICAL SOCIETY OF LONDON

LIST OF THE OFFICERS AND COUNCIL

Elected February 20th, 1931

PRESIDENT

Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S.

VICE-PRESIDENTS

John Frederick Norman Green, B.A.	Herbert Henry Thomas, M.A., Sc.D., F.R.S.
Prof. John Walter Gregory, LL.D., D.Sc., F.R.S.	Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S.

SECRETARIES

Walter Campbell Smith, M.C., T.D., M.A.	Prof. William Thomas Gordon, M.A., D.Sc., F.R.S.E.
--	---

FOREIGN SECRETARY

Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.

TREASURER

Frederick Noel Ashcroft, M.A., F.C.S.

COUNCIL

Frederick Noel Ashcroft, M.A., F.C.S.	Sir Albert Ernest Kitson, C.M.G., C.B.E.
Prof. Percy George Hamnall Boswell, D.Sc., F.R.S., A.R.C.S., D.I.C.	Emil Montag, M.Sc.
Prof. Charles Gilbert Cullis, D.Sc.	Bernard Smith, M.A., Sc.D.
Sir John Smith Flett, K.B.E., M.A., LL.D., D.Sc., F.R.S.L. & E.	Walter Campbell Smith, M.C., T.D., M.A.
Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S.	Leonard Frank Spath, D.Sc.
Prof. Albert Gilligan, D.Sc., B.Sc.	Prof. Henry Hurd Swinnerton, D.Sc.
Prof. William Thomas Gordon, M.A., D.Sc., F.R.S.E.	Herbert Henry Thomas, M.A., Sc.D., F.R.S.
John Frederick Norman Green, B.A.	Cecil Edgar Tilley, Ph.D., B.Sc., A.I.C.
Prof. John Walter Gregory, LL.D., D.Sc., F.R.S.	Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S.
Leonard Hawkes, D.Sc.	Leonard Johnston Wills, M.A., Sc.D., Ph.D.
Charles William Hobley, C.M.G.	Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.
Prof. Owen Thomas Jones, M.A., D.Sc., F.R.S.	

ASSISTANT SECRETARY AND EDITOR

Arthur Greig

LIBRARIAN

Norman Ernest Pettitt, B.Sc.

CLERK

Miss M. S. Coke

LIBRARY ASSISTANT

Miss E. D. Eastwood

PUBLICATION COMMITTEE

Prof. E. J. Garwood, *President*

Mr. W. Campbell Smith } Prof. W. T. Gordon } <i>Secretaries</i>	Mr. F. N. Ashcroft, <i>Treasurer</i>
--	--------------------------------------

Prof. P. G. H. Boswell
Sir John S. Flett
Prof. J. W. Gregory
Prof. H. H. Swinnerton

Dr. H. H. Thomas
Prof. W. W. Watts
Sir Arthur Smith Woodward

RECENT AND FORTHCOMING BOOKS

GERMAN-ENGLISH GEOLOGICAL TERMINOLOGY. By Dr. W. R. JONES and Dr. A. CISSARZ. *Probably ready November.*

The terms commonly used in general geology, palæontology, crystallography, mineralogy, petrology, the study of mineral deposits, etc., in English and in German are defined and exemplified in parallel texts. Appendices give, in the two languages, abbreviations frequently used, names of elements and minerals, and conversion tables. The book is fully indexed.

A PRACTICAL HANDBOOK OF WATER SUPPLY. By Dr. F. DIXEY, Director of the Geological Survey, Nyasaland. **21s. net.**

Although this book has been written for those who are faced with the practical problems of finding water in undeveloped areas, the geological aspect is so thoroughly and competently treated that the work deserves to be included in every geological library.

THE STUDY OF ROCKS. By Professor S. J. SHAND. **6s. net.**

"Eruptive, sedimentary and metamorphic rocks are discussed in turn and as much attention is given to their appearance in the field as to their mineralogical and chemical characters. The vexed question of the classification of eruptive rocks is discussed in a chapter which may be read with profit by more advanced students, for it gives an outline of no less than ten systems which are in use at the present day."—*Extract from prospectus.*

THE JAPANESE EARTHQUAKE OF 1923. By Dr. C. DAVISON. **7s. 6d. net.**

"... a most comprehensive account of the disaster, and so well illustrated with photos, maps and diagrams and supplied with statistics that it can well be regarded as a very useful earthquake text-book."—*Bulletin of the Imperial Institute.*

THOS. MURBY & CO., 1 FLEET LANE, LONDON, E.C.4

PUBLICATIONS ON SALE FROM THE GEOLOGICAL SOCIETY

QUARTERLY JOURNAL, Vols. III to LXXXVI inclusive. Price £1 10s. per volume (unbound), to Fellows £1. Separate parts, price 7s. 6d. each, to Fellows 5s. Postage extra. Certain parts are out of print, and others, on account of their scarcity, available only at enhanced prices. The numbers and prices of these parts can be obtained at the Society's office. **GENERAL INDEX TO THE FIRST FIFTY VOLUMES (1845-94).** Part I (A-La), Part II (La-Z). Price 7s. 6d. each, to Fellows 5s. Postage extra.

GEOLOGICAL LITERATURE added to the Geological Society's Library during the years ended December 31st, 1894-1914, 1920-24. Price 5s. each, to Fellows 3s. 9d. Postage extra. Geological Literature for 1915-19 (in one volume), 1926-30. Price 10s. each, to Fellows 7s. 6d. Postage extra.

ORDINARY MEETINGS OF THE GEOLOGICAL SOCIETY TO BE HELD AT BURLINGTON HOUSE

SESSION 1931-1932.

1931		1932	
Wednesday, November	4*, 18	Wednesday, February	10*, 24*
,, December	2*, 16*	,, March	9, 23*
		,, April	27*
		,, May	11, 25*
Wednesday, January	13*, 27*	,, June	8, 22*

ANNUAL GENERAL MEETING, Friday, February 19, 1932.

[Asterisks denote the days on which the Council will meet.]

CONTENTS

	PAGE
12. H. VON IHERING. Land-Bridges across the Atlantic and Pacific Oceans during the Kainozoic Era	376
13. L. R. WAGER. Jointing in the Great Scar Limestone of Craven and its relation to the Tectonics of the Area. (Plates XXXI-XXXIV)	392
14. H. WILLIAMS and O. M. B. BULMAN. The Geology of the Dolwyddelan Syncline (North Wales). (Plates XXXV-XXXVII)	425
15. E. S. COBBOLD. Additional Fossils from the Cambrian Rocks of Comley, Shropshire. (Plates XXXVIII-XLI)	459
16. J. F. N. GREEN. The South-West Highland Sequence. (Plate XLII).	513
Proceedings of the Geological Society of London, Session 1930-31, including the Anniversary Address of the President	lxv-cviii

The Editor of the Quarterly Journal is directed to make it known to the Public that the Authors alone are responsible for the facts and opinions contained in their respective papers, and for the correctness of their references.

Authors desirous of communicating papers to the Society will be supplied, on application to the Assistant Secretary, with a copy of 'Instructions to Authors', issued by the Council on the recommendation of the Publication Committee.

The Society's Library is open every week-day from 10 o'clock until 5, except on Saturdays, when the hours are from 10 o'clock until 1.

No. 348

THE
QUARTERLY JOURNAL
OF THE
GEOLOGICAL SOCIETY
OF LONDON

EDITED BY
THE ASSISTANT SECRETARY

VOLUME LXXXVII, PART 4
(ISSUED NOVEMBER 16TH, 1931)

LONDON :
LONGMANS, GREEN & CO. LTD.
PARIS:—CHARLES KLINCKSIECK, 11 RUE DE LILLE
SOLD ALSO AT THE APARTMENTS OF THE SOCIETY

Price Seven Shillings and Sixpence

GEOLOGICAL SOCIETY OF LONDON

LIST OF THE OFFICERS AND COUNCIL

Elected February 20th, 1931

PRESIDENT

Prof. Edmund Johnston Garwood, M.A., Sc.D., F.R.S.

VICE-PRESIDENTS

John Frederick Norman Green, B.A.
Prof. John Walter Gregory, LL.D., D.Sc.,
F.R.S.

Herbert Henry Thomas, M.A., Sc.D.,
F.R.S.
Prof. William Whitehead Watts, LL.D.,
Sc.D., M.Sc., F.R.S.

SECRETARIES

Walter Campbell Smith, M.C., T.D.,
M.A.

Prof. William Thomas Gordon, M.A.,
D.Sc., F.R.S.E.

FOREIGN SECRETARY

Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.

TREASURER

Frederick Noel Ashcroft, M.A., F.C.S.

COUNCIL

Frederick Noel Ashcroft, M.A., F.C.S.
Prof. Percy George Hannall Boswell,
D.Sc., F.R.S., A.R.C.S., D.I.C.
Prof. Charles Gilbert Cullis, D.Sc.
Sir John Smith Flett, K.B.E., M.A.,
LL.D., D.Sc., F.R.S.S. I. & E.
Prof. Edmund Johnston Garwood, M.A.,
Sc.D., F.R.S.
Prof. Albert Gilligan, D.Sc., B.Sc.
Prof. William Thomas Gordon, M.A.,
D.Sc., F.R.S.E.
John Frederick Norman Green, B.A.
Prof. John Walter Gregory, LL.D., D.Sc.,
F.R.S.
Leonard Hawkes, D.Sc.
Charles William Hobley, C.M.G.
Prof. Owen Thomas Jones, M.A., D.Sc.,
F.R.S.

Sir Albert Ernest Kitson, C.M.G., C.B.E.
Emil Montag, M.Sc.
Bernard Smith, M.A., Sc.D.
Walter Campbell Smith, M.C., T.D.,
M.A.
Leonard Frank Spath, D.Sc.
Prof. Henry Hurd Swinnerton, D.Sc.
Herbert Henry Thomas, M.A., Sc.D.,
F.R.S.
Prof. Cecil Edgar Tilley, Ph.D., B.Sc.,
A.I.C.
Prof. William Whitehead Watts, LL.D.,
Sc.D., M.Sc., F.R.S.
Leonard Johnston Wills, M.A., Sc.D.,
Ph.D.
Sir Arthur Smith Woodward, LL.D.,
F.R.S., F.L.S.

ASSISTANT SECRETARY AND EDITOR

Arthur Greig

LIBRARIAN

Norman Ernest Pettitt, B.Sc.

CLERK

Miss M. S. Coke

LIBRARY ASSISTANT

Miss E. D. Eastwood

PUBLICATION COMMITTEE

Prof. E. J. Garwood, *President*

Mr. W. Campbell Smith }
Prof. W. T. Gordon } *Secretaries*

Mr. F. N. Ashcroft, *Treasurer*

Prof. P. G. H. Boswell
Sir John S. Flett
Prof. J. W. Gregory
Prof. H. H. Swinnerton

Dr. H. H. Thomas
Prof. W. W. Watts
Sir Arthur Smith Woodward

Pp. xvii + 250.

Ready December.

12/6 net.

German-English Geological Terminology

By W. R. JONES, D.Sc., F.G.S., M.I.M.M. and DR. A. CISSARZ

The English and German terms are defined and exemplified in parallel texts

CONTENTS

- I. Introduction
- II. Denudation of rocks
- III. Earth movements
- IV. Vulcanism
- V. Principles of Stratigraphy
- VI. Palaeontology
- VII. Crystallography
- VIII. Physical Mineralogy
- IX. Chemical Mineralogy
- X. External forms of minerals
- XI. Petrology
- XII. Sedimentary rocks
- XIII. Metamorphic rocks
- XIV. Ore deposits

APPENDICES:

Abbreviations, Conversion tables (measures, weights, etc.), The chemical elements, Mineral Names.

INDEXES

INHALTSVERZEICHNIS

- I. Einleitung
- II. Abtragung der Gesteine
- III. Erdbewegungen
- IV. Vulkanismus
- V. Grundlagen der Stratigraphie
- VI. Paläontologie
- VII. Kristallographie
- VIII. Kristallographie
- IX. Mineralchemie
- X. Ausbildungsformen der Mineralien
- XI. Petrologie
- XII. Sedimentgesteine
- XIII. Metamorphe Gesteine
- XIV. Erzlagerstätten

ANHÄNGE:

Abkürzungen, Vergleichstabelle (Maasse, Gewichte, u.s.w.), Die chemischen Elemente, Mineralnamen.

INHALTVERZEICHNISSE

Recently published

A PRACTICAL HANDBOOK OF WATER SUPPLY. By Dr. F. Dixey, F.G.S. 21/- net.

THE STUDY OF ROCKS. By Professor S. J. Shand. 6/- net.

THE JAPANESE EARTHQUAKE OF 1923. By Dr. C. Davison. 7/5 net.

HANDBOOK OF THE GEOLOGY OF GREAT BRITAIN. Edited by Dr. J. W. Evans, F.R.S. and Dr. C. J. Stubblefield. 24/- net.

T. MURBY & CO., 1, Fleet Lane, Ludgate Circus, LONDON, E.C.4.

METHUEN'S NEW GEOLOGICAL BOOKS

DALRADIAN GEOLOGY: The Dalradian Rocks of Scotland and their Equivalents in other Countries.

By J. W. GREGORY, LL.D., D.Sc., F.R.S., Emeritus Professor of Geology in the University of Glasgow. With Plates and Diagrams. *Crown 8vo.* 12s. 6d. net.

[Ready, Nov. 1931.]

THE UNSTABLE EARTH: Some Recent Views in Geomorphology.

By J. A. STEERS, M.A. With Numerous Diagrams. *Crown 8vo.* [Ready, Jan. 1932.]

THE BALTIC REGION: A Study in Physical and Human Geography, with full Geological Descriptions.

By E. G. WOODS, Sc.D., F.G.S., F.R.G.S. With 145 Illustrations and Maps. *Demy 8vo.* 18s. net. [Ready, Jan. 1932.]

GENERAL STRATIGRAPHY.

By Professor J. W. GREGORY and B. H. BARRETT, M.A., B.Sc., Lecturer in Geology in the University of Glasgow. With 10 Maps and 36 Illustrations. *Crown 8vo.* 10s. net.

METHUEN & CO., LTD., 36 ESSEX STREET, LONDON, W.C. 2

CONTENTS

	PAGE
17. A. HEARD and J. F. JONES. A New Plant (<i>Thallomia</i>) showing Structure, from the Downtonian Rocks of Llandovery, Carmarthenshire. (Plates XLIII–XLVI)	551
18. W. J. ARKELL. The Upper Great Oolite, Bradford Beds, and Forest Marble of South Oxfordshire, and the Succession of Gastropod Faunas in the Great Oolite. (Plates XLVII–LI)	563
19. O. H. SCHINDEWOLF. On the Genotype and Septal Development of the Coral Genus <i>Petraia</i> Münster. (Plate LII)	630
20. M. M. L. PARKINSON and W. F. WHITTARD. The Geological Work of the Cambridge Expedition to East Greenland in 1929. (Plates LIII–LX)	650

[Title-page, table of contents, and index to Volume LXXXVII]

The Editor of the Quarterly Journal is directed to make it known to the Public that the Authors alone are responsible for the facts and opinions contained in their respective papers, and for the correctness of their references.

Authors desirous of communicating papers to the Society will be supplied, on application to the Assistant Secretary, with a copy of 'Instructions to Authors', issued by the Council on the recommendation of the Publication Committee.

The Society's Library is open every week-day from 10 o'clock until 5, except on Saturdays, when the hours are from 10 o'clock until 1.