

GEOLOGICAL MAGAZINE

Edited by

O. M. B. BULMAN, S. R. NOCKOLDS, and
W. B. HARLAND

assisted by

PROFESSOR W. G. FEARNSIDES PROFESSOR O. T. JONES
PROFESSOR LEONARD HAWKES SIR WILLIAM PUGH
PROFESSOR C. E. TILLEY

CONTENTS

	PAGE
WILSON, ALLAN F. Co-Existing Pyroxenes: Some Causes of Variation and Anomalies in the Optically Derived Compositional Tie-Lines, with Particular Reference to Charnockitic Rocks	1
DINELEY, D. L. The Old Red Sandstone of Eastern Ekmanfjorden, Vestspitsbergen	18
CIFELLI, RICHARD. Notes on the Distribution of English Bathonian Foraminifera	33
ALLEN, J. R. L. Cornstone	43
LJUNGGREN, PONTUS. A Formation of Marekanite at El Fiscal, Guatemala	49
PITCHER, W. S., and READ, H. H. Early Transverse Dykes in the Main Donegal Granite	53
WALKER, G. P. L. An Occurrence of Mugearite in Antrim	62
JAEGER, J. C. Shear Failure of Anisotropic Rocks	65
JENKINS, GLYNDWR. Deformation Features in Cataclastic Quartz	73

CORRESPONDENCE

pp. 82-85

REVIEWS

pp. 86-87

PUBLICATIONS RECEIVED

pp. 87-88

STEPHEN AUSTIN & SONS, LTD.

CAXTON HILL, WARE ROAD, HERTFORD, HERTS

GEOLOGICAL MAGAZINE

founded in 1864

by the late Dr. H. Woodward, F.R.S., with which

is incorporated

THE GEOLOGIST

(founded 1858)

Published every two months price 45/- per annum.
(single numbers, 10/-).

Subscriptions for 1960, inquiries relating to back stock, advertising, etc., should be sent to Stephen Austin & Sons, Ltd., Caxton Hill, Ware Road, Hertford, Herts.

Complete unbound volumes prior to 1959 (where available), £2 10s.

The Editors are 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.

Instructions to Contributors.

Articles submitted for publication in the *Geological Magazine* should be addressed to the Editors at the *Sedgwick Museum, Cambridge*, not to the Publishers.

Manuscripts should be typewritten, double-spaced, and preferably with a wide margin, and should be carefully revised; they should be as concise as possible and should not exceed 10,000 words. In the case of a long article allowance must be made for text-figures at the rate of approximately twenty words per sq. in. MS. must be accompanied by a short abstract, 50-100 words. References should not be given in footnotes, but arranged in alphabetic order of author's names at the end of the article; the author's name should be followed by date of publication, and the title of each paper should be given in addition to volume and page numbers of the Journal. The name of the Journal should be abbreviated according to the form in the *World List of Scientific Periodicals* (3rd Ed., London, 1952).

References should be cited in the text by author's name and date, with page reference if necessary, in brackets:—(Lapworth, 1878, p. 339).

Illustrations should be so drawn as to allow reduction to a maximum size of $6\frac{1}{2} \times 3\frac{1}{2}$ inches (the type-area of the Magazine) and originals must not exceed 40×22 inches. Map lettering should be such as to be clearly legible after reduction (equivalent to 5-point as a *minimum* on reduction), while lettering on text-figures should in general be left in pencil for printing.

Authors will receive 25 reprints free of cost.

THE
GEOLOGICAL MAGAZINE

VOL. XCVII OF WHOLE SERIES

JANUARY-DECEMBER, 1960

GEOLOGICAL MAGAZINE

with which is incorporated

THE GEOLOGIST

FOUNDED IN 1864 BY THE LATE DR. HENRY WOODWARD, F.R.S.

Edited by

O. M. B. BULMAN, Sc.D. A.R.C.Sc., F.R.S.,

S. R. NOCKOLDS, Ph.D., F.R.S.,

and

W. B. HARLAND, M.A.

assisted by

PROFESSOR W. G. FEARNSIDES, M.A., F.R.S.

PROFESSOR LEONARD HAWKES, D.Sc., F.R.S.

PROFESSOR O. T. JONES, M.A., D.Sc., F.R.S.

PROFESSOR SIR WILLIAM PUGH, O.B.E., D.Sc., F.R.S.

PROFESSOR C. E. TILLEY, Ph.D., F.R.S.

Vol. XCVII of Whole Series

JANUARY—DECEMBER, 1960

STEPHEN AUSTIN & SONS, LTD.

CAXTON HILL, WARE ROAD, HERTFORD, HERTS

CONTENTS

ARTICLES

(Figures in bold type denote number of issue)

- ADAMS, C. G.
A Note on the Age of the Laig Gorge Beds, **Eigg**, **4**, 322-325.
- AGER, D. V.
Nomenclatural Problems in the Mesozoic Rhynchonelloidea, **2**, 157-162.
- ALLEN, ADRIAN.
Seismic Refraction Investigations of the Preglacial Valley of the River Teifi near Cardigan, **4**, 276-282.
- ALLEN, J. R. L.
Cornstone, **1**, 43-48.
- ANDERSON, J. G. C.
The Wenlock Strata of South Mayo, **4**, 265-275.
- ANDERSON, T. B. D., E. B. BATES, and R. S. HAMILTON.
A Note on the Disposition of Fold Axes in the Silurian Strata around the Newry Granodiorite, **3**, 239-244.
- BADEN-POWELL, D. F. W.
On the Nature of the Coralline Crag, **2**, 123-132.
- BERRY, F. G.
A New Instrument for Determining Planar Orientation **4**, 309-312.
- BROWN, P. E.
Structural Behaviour of Quartzite in a Migmatite Area, Tanganyika, **3**, 250-254.
- CAVE, R.
A New Species of *Tretaspis* from South Wales, **4**, 334-337.
- CIFELLI, RICHARD.
Notes on the Distribution of English Bathonian Foraminifera, **1**, 33-42.
- COORAY, P. G., and P. S. KUMARAPEL.
Corundum in Biotite-Sillimanite Gneiss from near Polgahawela, Ceylon, **6**, 480-487.
- CRAMPTON, C. B.
Petrography of the Mesozoic Succession of South Wales, **3**, 215-228.
- CURRY, DENNIS.
Eocene Limestones to the West of Jersey, **4**, 289-298.
- DEAN, W. T.
The Ordovician Rocks of the Chatwall District, Shropshire, **2**, 163-171.
- DINELEY, D. L.
The Old Red Sandstone of Eastern Ekmanfjorden, Vesperspitsbergen, **1**, 18-32.
- ELWELL, R. W. D., R. R. SKELHORN, and A. R. DRYSDALL.
Inclined Granitic Pipes in the Diorites of Guernsey, **2**, 89-105.
- FARRAND, M. G.
The Distribution of some Elements across the Contacts of Four Xenoliths, **6**, 488-493.
- GOBBETT, D. J. A.
A New Species of Trilobite from the Lower Oslobreen Limestone, **6**, 457-460.
- GOBBETT, D. J., and C. B. WILSON.
The Oslobreen Series, Upper Hecla Hoek of Ny Friesland, Spitsbergen, **6**, 441-457.
- HAMILTON, E.
The Distribution of Radioactivity in some Fine-grained Igneous Rocks, **3**, 255-260.
- HOBBS, D. W.
The Strength and Stress-strain Characteristics of Oakdale Coal under Triaxial Compression, **5**, 422-435.

- HUDSON, J. D.
The Laig Gorge Beds, Isle of Eigg, 4, 313–321.
- HUDSON, R. G. S.
The Permian and Trias of the Oman Peninsula, Arabia, 4, 299–308.
- HUGHES, CHARLES, J.
An Occurrence of Tilleyite-bearing Limestones in the Isle of Rhum, Inner Hebrides, 5, 384–388.
- JAEGER, J. C.
Shear Failure of Anisotropic Rocks, 1, 65–72.
- JENKINS, GLYNDWR.
Deformation Features in Cataclastic Quartz, 1, 73–81.
- JOPLIN, GERMAINE, A.
On the Tectonic Environment of Basic Magma, 5, 363–368.
- KING, BASIL, C.
The Form of the Beinn An Dubhaich Granite, Skye, 4, 326–333.
- LJUNGGREN, PONTUS.
A Formation of Marekanite at El Fiscal, Guatemala, 1, 49–52.
- MIDDLETON, GERARD, V.
Spilitic Rocks in South-east Devonshire, 3, 192–207.
- NAHA, K., and S. K. GHOSH.
Archaean Palaeogeography of Eastern and Northern Singhbhum, Eastern India, 5, 436–439.
- NEALE, J. W.
The Subdivision of the Upper D Beds of the Speeton Clay of Speeton, East Yorkshire, 5, 353–362.
- NORMAN, TEOMAN, N.
Azimuths of Primary Linear Structures in Folded Strata, 4, 338–343.
- O'HARA, M. J.
A Garnet Hornblende-Pyroxene Rock from Glenelg, Inverness-shire, 2, 145–156.
Co-existing Pyroxenes in Metamorphic Rocks, 6, 498–503.
- PITCHER, W. S., and H. H. READ.
Early Transverse Dykes in the Main Donegal Granite, 1, 53–61.
- RAY, P. S.
Ignimbrite in the Kilchrist Vent, Skye, 3, 229–238.
- RHODES, F. H. T.
The Efficacy of Natural Selection as an Evolutionary Agent, with Particular Reference to the Fossil Record, 3, 177–191.
- ROLFE, W. D. IAN.
A Fine Air-Heave Structure from the Old Red Sandstone of Lanarkshire, Scotland, 2, 133–136.
- RUDWICK, M. J. S.
The Feeding Mechanisms of Spire-bearing Fossil Brachiopods, 5, 369–383
- SANDERS, JOHN, E.
Origin of Convoluted Laminae, 5, 409–421.
- SARJEANT, W. A. S.
New Hystrichospheres from the Upper Jurassic of Dorset, 2, 137–144.
- SHOTTON, F. W.
Large Scale Patterned Ground in the Valley of the Worcestershire Avon, 5, 404–408.
- SMITH, SHELAGH M.
Metamorphism of the Jurassic Rocks of Glas Bheinn Bheag, near Dunan, Isle of Skye, 6, 466–479.
- SOPER, N. J.
A Note on Current-bedded Moines near Garve, Wester Ross, 6, 504–508.
- SUTTON, JOHN, and JANET WATSON.
Sedimentary Structures in the Epidotic Grits of Skye 2, 106–122.
- TILLEY, C. E.
Kilauea Magma, 1959–60, 6, 494–497.

- TOCHER, F. E.
Hornblende orientation, 6, 461–465.
- TUCKER, E. V.
Ludlovian Biotite-Bearing Bands, 3, 245–249.
- WALKER, G. P. L.
An Occurrence of Mugearite in Antrim, 1, 62–64.
- WEIR, J. A.
Mudstone Inclusions in Salopian Conglomerates from County Clare
4, 283–288.
- WELLS, ALAN J.
Cyclic Sedimentation : A Review, 5, 389–403.
- WILLIAMS, EMYR.
Intra-Stratal Flow and Convolute Folding, 3, 208–214.
- WILSON, ALLAN F.
Co-Existing Pyroxenes : Some Causes of Variation and Anomalies in the
Optically Derived Compositional Tie-Lines, with Particular Reference
to Charnockitic Rocks, 1, 1–17.

REVIEWS

- The Earth and its Gravity Field, 1, 86.
- Elements of Geology, 1, 86.
- Principles of Geology, 1, 86.
- Darwin's Biological Work : Some Aspects Reconsidered, 1, 87.
- Introduction to Historical Geology, 2, 176.
- The Pleistocene of Ceylon, 2, 176.
- Beaches and Coasts, 3, 264.
- Mineralogy—Concepts, Descriptions, Determinations, 4, 349.
- Geologic Evolution of Europe, 4, 350.
- British Caenozoic Fossils (Tertiary and Quaternary), 4, 350.
- Basic Geology for Science and Engineering, 5, 440.
- Stratigraphic Principles and Practice, 5, 440.
- The Evolution of North America, 6, 525.
- The Earth Beneath the Sea, 6, 526.
- Structural Methods for the Exploration Geologist, 6, 527.
- Subsurface Mapping, 6, 527.
- Elements of Cartography, 6, 527.
- New Instruments and Methods of Engineering Geology, 6, 528.
- Geology for Engineers, 6, 528.
- Publications Received, 1, 87–88 ; 4, 351–352 ; 6, 529–532.

CORRESPONDENCE

- Ultrabasic Pillow Lavas from Cyprus, 1, 82.
- Carboniferous Limestone-Namurian Junction in Ireland, 1, 84.
- The Bugle Pit, Hartwell, near Aylesbury, Bucks, SP(42)793121, 1, 84.
- The Southern Upland Fault in Ireland, 2, 172.
- Cenomanian Ammonite Zones, 2, 173.
- Devonian-Carboniferous Boundary, 2, 175.
- Impregnation of Rocks for Sectioning, 3, 261.
- Festoon Bedding and "Mud-with-Lenticles" Lithology, 3, 261.
- The Old Red Sandstone of Eastern Ekmanfjorden, 3, 263.
- Metamorphic Segregation Bodies, 4, 344.
- Irish Erosion Surfaces, 4, 345.
- Petrography of the Mesozoic Succession of South Wales, 4, 348.
- Deposition of the Old Red Sandstone, 6, 509.
- Wenlock Strata of South Mayo, 6, 510.
- Depth to Top of Postulated Weardale Granite, 6, 511.
- Feeding Mechanisms of Spire-bearing Brachiopods, 6, 514.
- On *Gryphaea*, 6, 518.
- "Deltaic" Cyclothems, 6, 524.

PLATES

- I. Marekanite from Guatemala. **1**, facing p. 52.
- II. Cataclastic Quartz. **1**, facing p. 74.
- III. Cataclastic Quartz. **1**, facing p. 76.
- IV. Inclined Granitic Pipes. **2**, facing p. 104.
- V. Air-Heave Structure in Old Red Sandstone. **2**, facing p. 136.
- VI. Hystrichospheres from the Upper Jurassic. **2**, facing p. 144.
- VII. Ignimbrite in the Kilchrist Vent, Skye. **3**, facing p. 238.
- VIII. Gneiss and Quartzite, E. of Igawa, Tanganyika. **3**, facing p. 254.
- IX. Trias of Oman, Arabia. **4**, facing p. 308.
- X. A New *Tretaspis* from S. Wales. **4**, facing p. 336.
- XI. Large-scale Patterned Ground. **5**, facing p. 408.
- XII. Fractured Specimens of Oakdale Coal. **5**, facing p. 435.
- XIII, XIV. Oslobreen Series. **6**, facing p. 460.
- XV. *Hystricurus wilsoni* sp. nov. **6**, facing p. 450.
- XVI. Metamorphism of Jurassic Rocks, Isle of Skye, **6**, facing p. 479.
- XVII. Current-bedded Moine Psammite, near Garve, Wester Ross. **6**, facing p. 508.