

THE
GEOLOGICAL MAGAZINE

VOL. 100 OF WHOLE SERIES

JANUARY-DECEMBER, 1963

Stephen Austin & SONS LTD
ORIENTAL AND GENERAL PRINTERS,
WESTYARD - 19873

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. 100 of Whole Series

JANUARY—DECEMBER, 1963

STEPHEN AUSTIN & SONS, LTD.

CAXTON HILL, WARE ROAD, HERTFORD, HERTS

CONTENTS

ARTICLES

(Figures in bold type denote number of issue)

- ADAMS, T. D.
The Geology of the Dinas Cwm-Rheidol Hydroelectric Tunnel, **4**, 371–378.
- ALLEN, J. R. L.
Depositional Features of Dittonian Rocks: Pembrokeshire compared with the Welsh Borderland, **5**, 385–400.
- ALLEN, J. R. L., & L. B. TARLO.
The Downtonian and Dittonian Facies of the Welsh Borderland, **2**, 129–155.
- BAKER, P. E., & P. G. HARRIS.
Lava Channels on Tristan da Cunha, **4**, 345–351.
- BARTON, M. E.
The Petrology of a Teschenite Sill at Landywood, Staffordshire, **6**, 533–550.
- BATES, D. E. B.
A Lower Ordovician Gastropod from Anglesey, **3**, 258–259.
- BRADSHAW, R., & D. I. SMITH.
Permafrost Structures on Sully Island, Glamorgan, **6**, 556–564.
- BROWN, H. C., & M. A. KHAN.
Portable Apparatus for Collecting Small Oriented Cores in the Field, **5**, 451–455.
- BROWN, P. R.
Algal Limestones and Associated Sediments in the Basal Purbeck of Dorset, **6**, 565–573.
- CHALLIS, G. A.
Layered Xenoliths in a Dyke, Awatere Valley, New Zealand, **1**, 11–16.
- CHAYES, F.
On Pyroxene Molecules in the CIPW Norm, **1**, 7–10.
- CHUBB, L. J., & K. BURKE.
Age of the Jamaican Granodiorite, **6**, 524–532.
- CLARKSON, C. M.
A New Species of *Pseudoclimacograptus* from the Ordovician of Marathon, Texas, **4**, 352–360.
- CLAXTON, C. W.
An Occurrence of Regionally Metamorphosed Pre-Cambrian Schists in South-West Pembrokeshire, **3**, 219–223.
- CRAMPTON, C. B.
Quartz Fabric Reorientation in the Region of Benmore Assynt, North-West Highlands of Scotland, **4**, 361–370.
- DALZIEL, I. W. D., & M. R. W. JOHNSON.
Evidence for the Geological Dating of the Granitic Gneiss of Western Airdgour, **3**, 244–254.
- DEWEY, J. F., & W. S. MCKERROW.
An Outline of the Geomorphology of Murrisk and North-West Galway, **3**, 260–275.
- EDEN, R. A., R. W. ELLIOT, R. E. ELLIOTT, & B. R. YOUNG.
Tonstein Bands in the Coalfields of the East Midlands, **1**, 47–58.
- GASS, I. G., P. G. HARRIS, & M. W. HOLDGATE.
Pumice Eruption in the Area of the South Sandwich Islands, **4**, 321–330.
- GILLILAND, W. N.
A Miniature “ Dyke ” Echelon, **5**, 424–427.
- HALLAM, A.
Eustatic Control of Major Cyclic Changes in Jurassic Sedimentation, **5**, 444–450.

- HAWKINS, T. R. W., & B. ROBERTS.
Agglutinate in North Jan Mayen, **2**, 156–163.
- HOLWILL, F. J. W.
A Note on the Mode of Attachment and Growth of the Coral *Metricorythium gracile* Schlüter, **6**, 503–506.
- HUTCHINS, P. F.
The Lower New Red Sandstone of the Crediton Valley, **2**, 107–128.
- KING, C. A. M., & P. T. WHEELER.
The Raised Beaches of the North Coast of Sutherland, Scotland, **4**, 299–320.
- LEAKE, B. E.
A Possible Fossil in a Graphitic Marble in the Connemara Schist, Cornamona, Co. Galway, Ireland, **1**, 44–46.
The Location of the Southern Uplands Fault in Central Ireland, **5**, 420–423.
- LEAKE, B. E., & P. J. LEGGO.
On the Age Relations of the Connemara Migmatites and the Galway Granite, West of Ireland, **3**, 193–204.
- LEWARNE, G. C.
Spongolites from the Arnsbergian of County Limerick, Ireland, **4**, 289–298.
- MACGREGOR, S. M. A., & J. L. ROBERTS.
Dalradian Pillow Lavas, Ardwell Bridge, Banffshire, **1**, 17–23.
- MCCALL, G. J. H.
A Reconsideration of Certain Aspects of the Rangwa and Ruri Carbonatite Complexes in Western Kenya, **2**, 181–185.
- MENEISY, M. Y., & J. A. MILLER.
A Geochronological Study of the Crystalline Rocks of Charnwood Forest, England, **6**, 507–523.
- MILLER, J. A., & P. E. BROWN.
The Age of some Carbonatite Igneous Activity in South-West Tanganyika, **3**, 276–279.
- NICHOLSON, R.
Eyed Folds and Interference Patterns in the Sokumfjell Marble Group, Northern Norway, **1**, 59–68.
- PHILPOTTS, A. R., & J. A. MILLER.
A Pre-Cambrian Glass from St. Alexis-des-Monts, Quebec, **4**, 337–344.
- PRESTON, J.
A Columnar Crystallization of Olivine and Plagioclase, **1**, 1–6.
- PRICE, N. J.
The Influence of Geological Factors on the Strength of Coal Measure Rocks, **5**, 428–443.
- RAMBERG, H.
Evolution of Drag Folds, **2**, 97–106.
- RICKARD, M. J.
Analysis of the Strike Swing at Crockator Mountain, Co. Donegal, Eire, **5**, 401–419.
- ROWELL, A. J.
Some Nomenclatural Problems in the Inarticulate Brachiopods, **1**, 33–43.
- RUSHTON, A. W. A.,
Paradoxides from Colombia, **3**, 255–257.
- RUST, B. R.
Some Investigations of the Roraima Formation Intrusives in British Guiana, **1**, 24–32.
- SABINE, P. A.
Volcanic and Associated Rocks in the Coal Measures of Colston Bassett (South) Borehole, Nottinghamshire, **6**, 551–555.
- SARKAR, S. N., & A. K. SAHA.
On the Occurrence of Two Intersecting Pre-Cambrian Orogenic Belts in Singhbhum and Adjacent Areas, India, **1**, 69–92.

- SASTRI, G. G. K.
Paragenesis of a Cordierite-Garnet Granulite from Assam, India, **4**, 331–336.
- SELLEY, R. C., D. J. SHEARMAN, J. SUTTON, & J. WATSON.
Some Underwater Disturbances in the Torridonian of Skye and Raasay, **3**, 224–243.
- SHIELLS, K. A. G.
Some Unusual Ripple Marks in Carboniferous Limestone near Spittal, North Northumberland, **6**, 498–502.
- STEVENS, G. R.
Faunal Realms in Jurassic and Cretaceous Belemnites, **6**, 481–497.
- STEWART, A. D.
On Certain Slump Structures in the Torridonian Sandstones of Applecross, **3**, 205–218.
- WORKMAN, D. R., & I. A. COWPERTHWAITTE.
An Occurrence of Kyanite Pseudomorphing Andalusite from Southern Rhodesia, **5**, 456–466.
- WRIGHT, J. B.
A Note on Possible Differentiation Trends in Tertiary to Recent Lavas of Kenya, **2**, 164–180.

CORRESPONDENCE

- BARTH, T. F. W. On Pyroxene Molecules in the CIPW Norm, **3**, 280–281.
- BOSE, M. K. Pre-Cambrian Perthosites in Nyasaland, **3**, 283.
- BROWN, P. E., & J. A. MILLER. An Absolute Age Determination on the Mourne Mountain Granite, **1**, 93.
- BROWN, P. E., & J. A. MILLER. On Dating the British Tertiary Igneous Province, **4**, 381–382.
- BURKE, K. Age Relations of Connemara Migmatites and Galway Granite, **5**, 470–471.
- BUTCHER, N. E. Age of the Alpine Folds of Southern England, **5**, 468–470.
- CHAYES, F. On Pyroxene Molecules in the CIPW Norm, **3**, 281–282.
- CHEENEY, R. F. ? Early Tertiary Fold Movements in Mull, **2**, 187–188.
- HARLAND, W. B. On Dating the British Tertiary Igneous Province, **4**, 380–381.
- HILLS, E. S. Conjugate Folds, Kinks and Drag, **5**, 467–468.
- KING, L. C. Carboniferous Glaciation in Gondwanaland, **2**, 188–190.
- KRETZ, R. Temperature Dependence of the Distribution Coefficient, **2**, 190.
- LE BAS, M. J. On Dating the British Tertiary Igneous Province, **4**, 379.
- MCCALL, J. Volcanic Rocks of the Oramutia Section, Central Kenya, **3**, 282–283.
- NIKOLOV, T. New Name for a Valanginian Ammonite Genus, **1**, 94.
- PHIPPS, C. Ludlovian Stratigraphy, **2**, 186.
- RAST, N. Volcanic Rocks of the Oramutia Section, Central Kenya, **1**, 94–95.
- REID, R. E. H. Pre-*Belemnitella mucronata* White Limestone in N.E. Antrim, **6**, 575–576.
- SYNGE, F. M. Geomorphology of Murrisk and North-West Galway, **6**, 574.

REVIEWS

- Africa, Geology of, **5**, 472–474.
- Africa South of the Sahara, Stratigraphic History of, **5**, 472–474.
- Foraminifera, Evolutionary Trends in, **5**, 474–476.
- Formation Evaluation, **3**, 284.
- Geological Sciences, Statistical Analysis in, **3**, 285–287.
- Glaciers and Snowfields in Norway, **4**, 383–384.
- Glaciological Bibliography of Norway, **4**, 383–384.
- Ireland, Historical Geology of, **3**, 284–285.

- Lower Upper Cretaceous Plant Microfossils from Minnesota, **1**, 95–96.
 Lyell, Charles, **1**, 95.
 Norsk Polarinstitut, Årbok, **5**, 472.
 Paleontology, Fundamentals of, **5**, 477–478.
 Petroleum Progress and Profits, **3**, 284.
 Publications Received, **2**, 191–192 ; **3**, 288 ; **5**, 479–480 ; **6**, 577–578.
 Tectonics of the Canadian Shield, **5**, 476–477.
 Zoological Micropalaeontology, Principles of, **5**, 477–478.

PLATES

- I. Columnar Crystallization in Dolerite, Co. Antrim, **1**, facing p. 6.
 II. Headed Dyke, Winterton River, Awatere Valley, New Zealand, **1**, facing p. 16.
 III. Pyroxenes in Noritic Gabbro, British Guiana, **1**, facing p. 32.
 IV. A Possible Fossil in Graphitic Schist, **1**, facing p. 46.
 V. Eyed Folds from the Sandvand Grey Marble, Sokumfjell Marble Group, Glomfjord, Norway, **1**, facing p. 68.
 VI. Eyed Folds from the Sokumfjell Marble Group, Glomfjord, Norway, **1**, facing p. 69.
 VII. Drag Folds, Norway, **2**, facing p. 106.
 VIII–X. Experimental Folds, **2**, following Plate VII.
 XI. Jan Mayen Agglutinate, **2**, facing p. 163.
 XII. Flow-lineated Alvikite, North Ruri, **2**, facing p. 184.
 XIII. Fig. 1. Pseudomorphs in Flow-lineated Alvikite, North Ruri, **2**, facing p. 185.
 Fig. 2. Carbonated Melilite Crystal, **2**, facing p. 185.
 XIV. Contact of Granite and Migmatites, Co. Galway, **3**, facing p. 204.
 XV–XVI. Underwater Disturbances, **3**, facing p. 242.
 XVII. Figs. 1–2. *Paradoxides* sp., **3**, facing p. 257.
 Figs. 3–8. *Ehmania akanthophora* Harrington and Kay, **3**, facing p. 257.
 Fig. 9. *Peronopsis* or *Hypagnostus* sp. Pygidium, **3**, facing p. 257.
 XVIII. Glassy Pseudotachylite from Quebec, **4**, facing p. 344.
 XIX–XXII. Lava Channels, Tristan da Cunha, **4**, facing p. 350.
 XXIII–XXIV. Quartz Fabrics, **4**, facing p. 368.
 XXV. Primary and Penecontemporaneous Depositional Structures, **5**, facing p. 400.
 XXVI. A Miniature “ Dyke ” Echelon, **5**, facing p. 427.
 XXVII. The Drilling Apparatus, **5**, facing p. 454.
 XXVIII. The Vertical-Coring Rig, **5**, following Plate XXVII.
 XXIX. The Horizontal-Coring Rig, **5**, following Plate XXVIII.
 XXX. The Core Orienting Devices, **5**, facing p. 455.
 XXXI. Kyanite Pseudomorphing Andalusite, Southern Rhodesia, **5**, facing p. 466.
 XXXII. Wave Oscillation Ripple Marks in Carboniferous Limestone near Spittal, North Northumberland, **6**, facing p. 502.
 XXXIII. *Metriophyllum gracile* Schlüter, **6**, facing p. 506.
 XXXIV. The Landywood Sill, **6**, facing p. 550.
 XXXV. Permafrost Structures in Glamorgan, **6**, facing p. 564.
 XXXVI. Algal Limestones in Basal Purbeck, **6**, facing p. 572.
 XXXVII. Photomicrographs of Basal Purbeck Limestones, **6**, facing p. 573.