July-August, 1952

GEOLOGICAL MAGAZINE

Edited by

O. M. B. BULMAN and S. R. NOCKOLDS

assisted by

PROFESSOR W. S. BOULTON PROFESSOR W. G. FEARNSIDES PROFESSOR LEONARD HAWKES PROFESSOR O. T. JONES W. J. PUGH PROFESSOR C. E. TILLEY

CONTENTS

Denne DI The Different's Out's Data Malasia and	PAGE
REYNOLDS, D. L. The Difference in Optics Between Volcanic and Plutonic Plagioclases, and its Bearing on the Granite Problem	233
TEMPLE, J. T. The Ontogeny of the Trilobite Dalmanitina olini	251
FLINN, D. A Tectonic Analysis of the Muness Phyllite Block of Unst and Uyea, Shetland	263
HARDIE, W. G. The Lochaber Series South of Loch Leven, Argyllshire	273
WILLIAMS, C. E. Carbonatite Structure: Tororo Hills, Eastern Uganda	286
HENSON, F. A. Volcanic Ash from the Hekla Eruption of 1947	293

REVIEWS

pages 298-301

CORRESPONDENCE

The Granitization Process and its Limitations	301
Supposed Tufa Bands in Carboniferous Reef Limestone	302
Fossiliferous Strata at Kapp Scania, Daudmannstyra, Vest Spitsbergen	303
The Age of the Malvern Folding	304

STEPHEN AUSTIN & SONS, LTD. 1 FORE STREET, 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 32/6 per annum (single numbers, 7/6).

Subscriptions for 1952, inquiries relating to back stock, advertising, etc., should be sent to Stephen Austin & Sons, Ltd., Fore Street, Hertford, Herts.

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 in no case should an article exceed 10,000 words. 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, thus :—

LAPWORTH, C. 1878. The Moffat Series. Quart. Journ. Geol. Soc., xxxiv, 240-343.

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

Illustrations should be so drawn as to allow reduction to a maximum size of $6\frac{3}{4} \times 3\frac{3}{4}$ 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.

SOUTHERN RHODESIA GOVERNMENT

VACANCY : GEOPHYSICAL PROSPECTING OFFICER : IRRIGATION DEPARTMENT

Applicants should hold a degree in Geology and preference will be given to those with training or experience in Geophysical Prospecting methods. Experience of Water Boring would be an additional recommendation. Salary Scale : $\pounds 600 \times \pounds 34$ to $\pounds 668 \times \pounds 33$ to $\pounds 800 \times \pounds 100$ to $\pounds 900 \times \pounds 40$ to

Salary Scale : $\pounds 600 \times \pounds 34$ to $\pounds 668 \times \pounds 33$ to $\pounds 800 \times \pounds 100$ to $\pounds 900 \times \pounds 40$ to $\pounds 1,140$ per annum. The successful applicant may be advanced up to four steps in the scale in recognition of approved previous experience. In addition, a cost of living allowance, at present 27 per cent of basic salary, and marriage and children's allowances are also payable.

Application forms and further details may be obtained from the Secretary, Rhodesia House, 429 Strand, London, W.C. 2; completed forms to be returned by 15th August. THE

GEOLOGICAL MAGAZINE

VOL. LXXXIX OF WHOLE SERIES

JANUARY-DECEMBER, 1952

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, Ph.D., A.R.C.Sc., F.R.S.

and

S. R. NOCKOLDS, Ph.D.

assisted by

PROFESSOR W. S. BOULTON, D.SC. 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. W. J. PUGH, O.B.E., D.SC., F.R.S. PROFESSOR C. E. TILLEY, Ph.D., F.R.S.

Vol. LXXXIX of Whole Series JANUARY-DECEMBER, 1952

STEPHEN AUSTIN & SONS, LTD 1 FORE STREET, HERTFORD, HERTS

HERTFORD

STEPHEN AUSTIN AND SONS, LTD.

CONTENTS OF VOLUME LXXXIX, 1952

No. 1	JANUARY-FEBRUARY	PAGE
G. WILSON.	Ptygmatic Structures and their Formation	1
	b. Cyclic Sedimentation of the Rough Rock (Millstone illustrated by a section near Eakring, Nottinghamshire	22
G. A. JOPLI	IN. The Granitization Process and its Limitations as fied in Certain Parts of New South Wales	25
	R. A Note on Chromite-Marbles	39
	Y. An Unusual Appinitic Sill Near Killin, Perthshire	41
	The Paragenesis of the Varuträsk Pegmatite	49
E. LEHMANN		
	on of Igneous Rocks	61
Correspond	ENCE.—The name "Tholeiite", 69; Age of the Portsalon nerate, 70.	
Geologi	Geologia Applicata all' Ingegneria, 71; International cal Congress, 71; Das Polarisations-mikroskop, 72; chemical Analysis, 72.	
No. 2	March-April	•
	N. Metamorphism of Granite Rocks by Olivine Dolerite al Australia	73
J. A. MABBU	TT. A Study of Granite Relief from South-West Africa	87
	N. Metamorphic Differentiation of Talc-Magnesite- Rocks in Shetland	97
	c. The Age Relationship of the Granophyre and Basalt I, Isle of Rhum	106
E. M. ANDER Currents	RSON. Lineation and its relation to sub-crustal Convection	113
G. G. LEMON	. The Moinian Inlier of Rosses Point, near Sligo, Eire .	124
	DR. Magmatic Intrusions and Lava-sheets in the Raman the Nagev (Southern Israel).	129
	A Quartz Vein System in the Moine Series near Melness, ne, North Sutherland, and its Tectonic Significance.	141
Sir L. L. FER	MOR. On a New Chrome-Garnet	145
W. S. McKe logy	RROW. Notes on the Species and Subspecies in Palaeonto-	148
Correspond	ENCE.—Zoological Nomenclature, 151; Accuracy in cal Localities, 152.	
No. 3	MayJune	
Т. М. Тнома	As. Littoral Trias in the Vale of Glamorgan	153

T. M. THOMAS. Littoral Trias in the Vale of Glamorgan	153
B. W. SPARKS. Pleistocene Sections at Barrington, Cambridgeshire .	163
B. E. BALME. Spore Specimens from British Upper Carboniferous	
Coals	175
F. G. H. BLYTH. Malvern Tectonics—A Contribution	185
W. W. BLACK. Supposed Tufa Bands in Carboniferous Reef Lime-	
stones	195
D. PARKINSON. Allometric Growth in Dielasma hastata from Treak	
Cliff, Derbyshire	201
C. FRIEDLAENDER. Structural Imperfections in Alpine Quartz Crystals	217
C. A. COTTON. Cyclic Resection of Headlands by Marine Erosion .	221

CORRESPONDENCE.—Foraminiferal Zones in the Tertiary of Australia 225, 228; Gold Coast University College, 230; Species and Subspecies, 230; Accuracy in Geological Localities, 231.

LIST OF PUBLICATIONS RECEIVED .- 231.

vi

ANNOUNCEMENTS.—International Geological Congress, Algiers, 1952, 162; Empire Mining and Metallurgical Congress, 220.

No. 4 JULY-AUGUST

DORIS L. REYNOLDS. The Difference in Optics Between Volcanic and Plutonic Plagioclases, and its Bearing on the Granite Problem	233
J. T. TEMPLE. The Ontogeny of the Trilobite <i>Dalmanitina olini</i> .	255
D. FLINN. A Tectonic Analysis of the Muness Phyllite Block of Unst	231
and Uyea, Shetland	263
W. G. HARDIE. The Lochaber Series South of Loch Leven, Argylishire	273
C. E. WILLIAMS. Carbonatite Structure : Tororo Hills, Eastern Uganda	286
F. A. HENSON. Volcanic Ash from the Hekla Eruption of 1947.	293
REVIEWS.—Internal Constitution of the Earth, 298; Geology of the Appleby District, 298; The Tectonics of Middle North America, 299; Sedimentary Petrography, 300; Coast Erosion and Pro- tection: Studies in Causes and Remedies, 300; Tables for Microscopic Identification of Ore Minerals, 301.	
CORRESPONDENCE.—The Granitization Process and its Limitations, 301; Supposed Tufa Bands in Carboniferous Reef Limestone, 302; Fossiliferous Strata at Kapp Scania, Daudmannsøyra, Vest Spitsbergen, 303; The Age of the Malvern Folding, 304.	
No. 5 September–October	
H. H. WILSON. The Cove Marine Bands in East Lothian and their	
Relation to the Ironstone Shale and Limestone of Redesdale,	200
Northumberland	305
J. WRIGHT. Crinoids from Thornton Burn, East Lothian .	320
W. S. PITCHER, and H. H. READ. An Appinitic Intrusion-Breccia at Kilkenney, Maas, Co. Donegal	328
F. WALKER. Mugearites and Oligoclase-Basalts	337
T. D. FORD. New Evidence on the Correlation of the Lower Car-	244
boniferous Reefs at Castleton, North Derbyshire.	346
K. A. JOYSEY. Fossil Lineages and Environmental Change	357
G. A. L. JOHNSON. A glacial erratic boulder of Shap Granite in South Northumberland	361
I. STRACHAN. On the Development of Diversograptus Manck	365
E. B. BAILEY. So-called Amygdaloidal Gabbro, Skye	369
D. L. REYNOLDS. So-called Amygdaloidal Gabbro, Skye: Comments on a paper by E. B. Bailey	376
REVIEWS.—Selected Exercises upon Geological Maps, 380; The Formation of Mineral Deposits, 380; Vergleichende Bauge- schichte de Gebirge, 380; Die Baugeschichte der Alpen, 380; Plane Table Mapping, 381; The Elements of Field Geology, 382.	
CORRESPONDENCE.—Pleistocene Sections at Barrington, 382; Malvern Tectonics, 384.	
No. 6 November-December	

A. N. THOMAS. On the Origins of the Kumaon Lakes in the Himalayas 385 R. J. ADIE. The Position of the Falkland Islands in a Reconstruction

of Gondwanaland . . . 401

PAGE

Contents

W. T. HARRY. Basic hornfels at a gabbro contact near Carlingford, 411 Eire K. W. BARR. Limestone Blocks in the Lower Cretaceous Cuche Formation of the Central Range, Trinidad, B.W.I. 417 . . V. A. EYLES and A. G. MACGREGOR. The Great Glen Crush-Belt 426 CORRESPONDENCE.-Foraminiferal Zones in the Tertiary of Australia, 437; Lineation in the Shetland Islands, 438; Mugearites and Oligoclase-Basalts, 439; Cove Marine Bands, 440; Malvern Tectonics, 440.

REVIEWS.—A Palaeogeographical Atlas, 441; Grundlagen der Bio-stratonomie, 442; Radiocarbon Dating, 442.

LIST OF PUBLICATIONS RECEIVED, -443. INDEX.--445.

vii

PAGE