Vol. XC. No. 6.

November-December, 1953

# GEOLOGY DEPARTMENT BIRKBECK COLLEGE, W.C.T 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 C. E. TILLEY

PROFESSOR O. T. JONES DR. W. J. PUGH

# CONTENTS

WILSON, G., WATSON, J., and SUTTON, J. Current-Bedding in the Moine Series of North-Western Scotland	377
EAMES, F. E. The Miocene/Oligocene Boundary and the Use of the Term Aquitanian	388
FARQUHAR, O. C. From Dolerite to Diorite: Older Granite Activity near Ellon, Aberdeenshire	393
TOMKEIEFF, S. I. "Hutton's Unconformity," Isle of Arran	404
MUIR, I. D. Quartzite Xenoliths from the Ballachulish Granodiorite	
CROFT, the late W. N. Breconian: a Stage Name of the Old Red Sandstone	429
LAMONT, A. Records of Irish Trilobites and Brachiopods	433

#### PUBLICATIONS RECEIVED p. 437

#### REVIEWS pp. 438-42

#### CORRESPONDENCE

A Temporary Section in the Malverns . The Prosicula of *Retiolites geinitzianus* Barr

444

INDEX pp. 445-8

STEPHEN AUSTIN & SONS, LTD. I 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 1953, 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  $6\frac{3}{4} \times 3\frac{3}{4}$  inches (the type-area of the Magazine) and originals must not exceed  $40 \times 22$  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 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.

#### **PUBLISHED SEPTEMBER 4th**

G LACIAL Drifts and the Undermelt Theory by R. G. Carruthers (36 pp., 4 plates, and 12 diagrams), 2s. 6d. net. Of all Booksellers or in case of difficulty from Harold Hill and Son, Ltd., 62 Northumberland Street, Newcastle upon Tyne. 2s. 9d. post free. THE

# GEOLOGICAL MAGAZINE

### VOL. XC OF WHOLE SERIES

JANUARY-DECEMBER, 1953

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

# Vol. XC of Whole Series JANUARY-DECEMBER, 1953

4-10-12

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

#### HERTFORD

STEPHEN AUSTIN AND SONS, LTD.

# **CONTENTS OF VOLUME XC, 1953**

No	<b>b.</b> 1		Janu	JARY-FE	BRUARY				PAGE
		The Develo	pment	of a Dip	lograpti	d from	the Platte	eville	
	Limestone						• •	•	1
		e Stratigra							17
	A. DEER. Complex	The Diori	ites and	Associa	ited Ro	ocks of	the Glen	Tilt	27
	*	Seven New	Gener:	of Iura	ssic Am	monites	• •	•	36
		The Sprea					••••	•	41
		KI. Note				the Poro	sity of W	ind-	
	Deposited		•	• •	•	·	• •	•	48
	R. K. BLI South Wa	UNDELL.	Magnet	ometric	Mappir	ng for	Haematite	e in	57
	<ol> <li>KIER.</li> <li>America</li> </ol>	A New I	Lower (	Carbonif	erous E	Echinoid	from N	orth	65
1	RESPONDEN pour l'Ét Ferrestre,"	CE.—The ude Géolo 70.	Great ogique	Glen Cri des Zoi	ush Bel nes Pro	t, 70; ofondes	" Associa de l'Éc	ition orce	
		h Waves, 🕻							
		RECEIVED			_				
Ann	OUNCEMEN of London	т.—Special , 72.	Unive	rsity Lec	tures in	Geolog	gy, Unive	rsity	
No	. 2		М	arch-A	PRIL				
:	Separate	s. New E Horizons one) at Sou	in the	Carboni	iferous	Limesto	Piping at one (Dib	two uno-	73
N. R	. WILLCON	k. Zonal V corys scutat	ariatior	in Sele			gical Feat	ures	83
		er. A Nev			idostrob	us conta	ining unu	isual	
5	Spores		·.			•			97
		Facies Chai							111
		Facies Ch						. ·	114
i	and North	i P. L. Wi numberland				•		•	117
]	Northern I	and D. MA Pennines .							127
		AN. On the							131
		in South V		ETTON.	Magnet	ometric	Mapping	; for	137
	RESPONDEN Wales, 14 Carvings,	CE.—Magn 0; The St 141.	etometri ione of	the An	oing for cient A	Haema ssyrian	itite in So Monume	outh ental	
Revi	ew.—The	Geological	Survey	of Gre	at Brit	ain, 142	•		
PUBL	ICATIONS I	RECEIVED	-144.						
Nc	o. 3			May–Ju	NE				

C. E. TILLEY. The Nephelinite of Etinde, Cameroons, West Africa	145
A. R. GINDY. Progressive Replacement of Limestone Inclusions in	
Granite at Ballynacarrick, Co. Donegal	152
H. I. DREVER. A Note on the Field Relations of the Shiant Isles' Picrite	159
R. JOHNSTON. The Olivines of the Garbh Eilean Sill, Shiant Isles	161

.

#### Contents

-

G. R. MCLACHLAN. The Bearing of Rolled Garnets on the Concept of <i>b</i> -lineation in Moine Rocks	172
L. R. WAGER. The Extent of Glaciation in the Island of St. Kilda .	177
I. D. MUIR. A Local Potassic Modification of the Ballachulish Grano- diorite	182
I. M. SIMPSON. Daviesiella destinezi (Vaughan), a Lower Carboniferous Index Fossil in North-West Ireland	193
L. R. Cox. Gastropoda from the Karroo Beds of Southern Rhodesia	201
K. A. JOYSEY. A Study of the Type-Species of the Blastoid Codaster McCoy	208
CORRESPONDENCE.—The Occurrence of Determinable Plants in the Lower Estuarines of Peterborough, 219; On Submarine Slumping in the Lower Ludlow Rocks of North Wales, 220; Accuracy in Geological Localities, 221; Gravity Measurements over the Northern Pennines, 221; Ludlovian Research Group, 223; The Sicula of <i>Monograpus scanicus</i> Tullberg, 224.	
ANNOUNCEMENT.—Clay Minerals Conference : Missouri 1953, 207.	
No. 4 JULY-AUGUST	
D. B. MCINTYRE and F. J. TURNER. Petrofabric Analysis of Marbles from Mid-Strathspey and Strathavon	225
D. R. HUNTER. An Occurrence of Chrysotile Asbestos, Usushwana Valley, Mbabane District, Swaziland	241
A. SPRY. Flow Structure and Laminar Flow in Bostonite Dykes at Armidale, New South Wales	248
M. H. P. BOTT. Negative Gravity Anomalies over Acid "Intrusions" and their Relation to the Structure of the Earth's Crust	257
K. A. DAVIES. A Basalt Flow and Feeding Dyke, N.E. Uganda	268
L. E. WEISS. Tectonic Features of the Hecla Hook Formation to the South of St. Jonsfjord, Vestspitsbergen	273
J. R. H. MCWHAE. The Carboniferous Breccias of Billefjorden, Vestspitsbergen	287
CORRESPONDENCE.—Gravity Measurements over the Northern Pennines	299
REVIEWS.—The Dynamics of Faulting and Dyke Formation with Applications to Britain, 300; Structural Geology, 300; Outlines of Structural Geology, 300; Structural and Field Geology, 300; Principles of Invertebrate Palaeontology, 301; The World's Oilfields: The Eastern Hemisphere, 302; Invertebrate Fossils, 303.	
PUBLICATIONS RECEIVED304.	
No. 5 September-October	
J. F. G. WILKINSON. Some Aspects of the Alpine-Type Serpentinites of Oueensland	305
W. SCHWARZACHER. Cross-Bedding and Grain Size in the Lower Cretaceous Sands of East Anglia	322
W. J. ARKELL. Bajocian Ammonites Collected by Sir Henry Hayden Near Kampadzong, Tibet	331
E. H. T. WHITTEN. Modal and Chemical Analyses in Regional Studies	337

W. W. BLACK. Critical Sections in a Carboniferous Reef Knoll . 345 . D. H. WILLIAMSON. Petrology of Chloritoid and Staurolite Rocks North of Stonehaven, Kincardineshire 353

M. WALKER. The Development of Monograptus dubius and Monograptus chimaera 362 • . . • • . . . . .

PAGE

.

#### Contents

REVIEWS.—Korallen aus dem Oberkarbon (Namur) des oberschlesischen Steinkohlen-Beckens, 374; Methods and Principles of Systematic Zoology, 374; Zoogeography of the Sea, 374; Falkland Islands Dependencies Survey: Scientific Reports 1-5, 375; La Mer, 375.
PUBLICATIONS RECEIVED.—376.

ANNOUNCEMENT.--- University of London: Special Lectures, 330.

No. 6 NOVEMBER–DECEMBER	
<ul> <li>G. WILSON, J. WATSON, and J. SUTTON. Current-Bedding in the Moine Series of North-Western Scotland</li> <li>37</li> </ul>	7
F. E. EAMES. The Miocene/Oligocene Boundary and the Use of the Term Aquitanian	8
D. C. FARQUHAR. From Dolerite to Diorite: Older Granite Activity near Ellon, Aberdeenshire	3
S. I. TOMKEIEFF. "Hutton's Unconformity," Isle of Arran 404	4
D. MUIR. Quartzite Xenoliths from the Ballachulish Granodiorite 40	9
The late W. N. CROFT. Breconian: a Stage Name of the Old Red Sandstone	9
A. LAMONT. Records of Irish Trilobites and Brachiopods 433	3
PUBLICATIONS RECEIVED.—437.	
REVIEWS.—Principles of Geochemistry, 438; The Earth, its Origin, History, and Physical Constitution, 438; International Geological Congress, 439; Summary of Progress of the Geological Survey of Great Britain and the Museum of Practical Geology for the Year 1951, 439; Deep-Sea Research, 440; Das Holzmadenbuch, 440; The Sea Coast, 441; Morphological Analysis of Land Forms, 441.	

CORRESPONDENCE.—A Temporary Section in the Malverns, 442; The Prosicula of *Retiolites geinitzianus*, 444.

INDEX.--445.

PAGE