

THE
GEOLOGICAL MAGAZINE.

VOL. LXI OF WHOLE SERIES.

JANUARY—DECEMBER, 1924.

THE
GEOLOGICAL MAGAZINE

OR
Monthly Journal of Geology.

WITH WHICH IS INCORPORATED
THE GEOLOGIST.

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

EDITED BY
R. H. RASTALL, Sc.D., M.Inst.M.M.,
UNIVERSITY LECTURER IN ECONOMIC GEOLOGY, CAMBRIDGE.

ASSISTED BY
PROFESSOR W. S. BOULTON, D.Sc.
PROFESSOR J. W. GREGORY, D.Sc., F.R.S.
F. H. HATCH, Ph.D., M.Inst.M.M.
SIR T. H. HOLLAND, K.C.S.I., D.Sc., F.R.S.
PROFESSOR J. E. MARR, Sc.D., F.R.S.
PROFESSOR W. W. WATTS, Sc.D., LL.D., M.Sc., F.R.S.
HENRY WOODS, M.A., F.R.S.
ARTHUR SMITH WOODWARD, LL.D., F.R.S.

VOL. LXI OF WHOLE SERIES.
JANUARY—DECEMBER, 1924.

LONDON:
DULAU & CO., LTD., 34-36 MARGARET STREET,
CAVENDISH SQUARE, W.1.

1924.

HERTFORD
STEPHEN AUSTIN AND SONS, LTD.

LIST OF PLATES.

PLATE	FACING PAGE
I.	Section showing overfolded Carbonaceous Shales : Cretaceous and Tertiary Fossils from the same 9
II.	Eocene Mollusca from the Port Maria Conglomerates 19
III.	New Ordovician and Silurian Fossils 30
IV.	Fossil Echinoidea from the Aru Islands 72
V.	Isolated Sand Grains from Modern Sahara and Scotland 112
VI.	Basal Tertiary Sandstone from S. and W. Mull, Scotland 112
VII.	Rock Sections, Crystalline Metamorphic Rocks of W. Togoland 134
VIII.	Rock Sections, Crystalline Metamorphic Rocks of W. Togoland 135
IX.	Igneous Rocks, Torquay 209
X.	Section of Roade Cutting 213
XI.	Roade Cutting, South Side of Bridge 2 217
XII.	Joints in Conglomerate after removal of Boulder-clay; Jointing in Conglomerate beneath Boulder-clay 245
XIII.	<i>Woodocrinus macrodactylus</i> de Kon. from Penton Linns. 273
XIV.	<i>Woodocrinus</i> cf. <i>macrodactylus</i> de Kon. from Penton Linns. 272
XV.	<i>Woodocrinus</i> cf. <i>expansus</i> de Kon. from Penton Linns. 272
XVI.	Crinoids from Penton Linns 272
XVII.	Brockram on Carboniferous Limestone; Railway Cutting S. of Bigrigg : Magnesian Limestone on Brockram, Saltoun Bay, Barrowmouth 308
XVIII.	Cretaceous and Tertiary Echinoids from Jamaica 324
XIX.	Hollow Blocks of Limestone, Cabo Blanco, Peru 337
XX.	Sun-cracked Pebbles from the Desert of Tumbez, Peru 337
XXI.	Geological Sketch Map of the British Virgin Islands 344
XXII.	Cretaceous Limestones in Jamaica 385
XXIII.	Rudistae from Jamaica 408
XXIV.	<i>Coralliochama</i> and <i>Biradiolites</i> from Jamaica 408
XXV.	Rudistae and <i>Ostrea</i> from Jamaica 408
XXVI.	Radiolitidae from Jamaica 408
XXVII.	Frost Action in Superficial Deposits, S.E. Iceland 513
XXVIII.	Junction of Appin Quartzite and Granite, Argyllshire 552

LIST OF ILLUSTRATIONS IN THE TEXT.

	PAGE
Map of Aru Islands	53
<i>Ostrea djuranaensis</i> Martin	57
<i>Pecten</i> cf. <i>tjaringinensis</i> Martin	59
<i>Clementia non-scripta</i> (Sow.)	62
Geological Map of South-Western Togoland	117
Diagrammatic representation of section detailed in Table II	151
Sections of the vertebral of man and chimpanzee	172
Dolerite glass penetrating silicified limestone	197
Quartz and chlorite in albite-dolerite	197
Geological map showing the Avonian outcrop at Cannington Park, Som.. . . .	221
Map showing position of new reservoir, Wenalt, near Cardiff	242
Section through new reservoir, Wenalt, Glamorganshire	244
Graphical representation of mechanical analysis of sands, Upper Lias and Inferior Oolite	250
Garnet showing irregular form	253
Sagenite-rutile	253
Kyanite	255
Sphene	255
Sketch-map showing chief glaciated gorges, etc., on Coniston Old Man	265
Diagram illustrating method of formation of asymmetrical slopes	266
Graded valleys draining from Long Moss contrasted with ungraded slope of Low Water Beck	269
<i>Woodocrinus expansus</i> de Kon	272
<i>Woodocrinus</i> cf. <i>expansus</i> de Kon	272
Same specimen, anterior view	272
<i>Woodocrinus</i> cf. <i>expansus</i> de Kon	273
<i>Woodocrinus</i> sp. No. 3 Bed, Invertiel	274
<i>Woodocrinus</i> sp. No. 3 Bed, Invertiel	275
Index map showing present distribution of the Brockram	290
Diagrammatic section showing lateral passage of the Brockram into other deposits	294
Generalized profile of Brockram	297
Map showing sites of borings near Kirksanton	298
Diagrammatic section along the line A—B in preceding map	299
Key-map showing relation of the Brit. Virgin Islands to the Leeward Islands proper	340
Section from Gras Vein, showing sharp junction between structureless vitrain and duller band	363
Green Vein, showing lenticle of parenchymatous tissue	363
Gras Vein, showing typical "flow" structure	363
Green Vein, showing cells and shrunken contents	363
Big Vein, showing portion of a lenticle of <i>fusain</i>	363
Pumpquart Vein	363
Stanlyd Vein, intercellular spaces filled with carbonaceous material	365
Pumpquart Vein, portion of <i>fusain</i> lenticle showing regular structure	365
Diagram showing modes of structure preservation	365
<i>Titanosarcolites gigantea</i> gen. nov.	399
Cretaceous Belemnites	411
Development of a normal Rugose Coral	418
<i>Heptaphyllum</i> and <i>Cryptophyllum</i>	421
Diagram of a rock-face, Castle Bridge, Huntly	434
Zoned Xenoliths, Hills of Kinnoir, Huntly	437

	PAGE
<i>Euphoberia ferox</i> (Salter)	458
<i>Eophrynus pococki</i> sp. nov.	460
<i>Anthracosiro woodwardi</i> Pocock	462
<i>Cyclus</i> cf. <i>johnsoni</i> Woodward	464
<i>Cyclus</i> cf. <i>johnsoni</i> Woodward	465
<i>Camptophyllia eltringhami</i> gen. et sp. nov.	468
<i>Camptophyllia fallax</i> sp. nov.	470
Isostatic Tendencies and Geodynamic Phenomena	488
Isostatic Tendencies and Geodynamic Phenomena	490
Position of supposed Glacier-Lake	544
Map to illustrate direction of ice scratches	545
Section of Cogra Valley	549