

THE  
GEOLOGICAL MAGAZINE.

VOL. LXII OF WHOLE SERIES.

JANUARY—DECEMBER, 1925.

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. LXII OF WHOLE SERIES.  
JANUARY—DECEMBER, 1925.

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

1925.

HERTFORD  
STEPHEN AUSTIN AND SONS, LTD.

## LIST OF PLATES.

PLATE	FACING PAGE
I. Senonian Ammonoidea from Jamaica . . . . .	32
II. New Silurian Trilobites . . . . .	72
III. Marine Triassic Fossils from the Malay States . . . . .	84
IV. Heavy Mineral Residues from Midland Cambrian, Silurian and Carboniferous Rocks . . . . .	128
V. Heavy Mineral Residues from Midland Permian and Triassic Rocks . . . . .	128
VI. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	180
VII. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	180
VIII. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	180
IX. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	180
X. <i>Micraster</i> sp., Sulham, Berks . . . . .	276
XI. British and American <i>Cyclidae</i> . . . . .	309
XII. Chloritoid Schist, The Frenchman, Eyre Peninsula . . . . .	316
XIII. Chloritoid Slate and Chlorite-Chloritoid Phyllite, Cornwall . . . . .	316
XIV. Normal and Meandrine Forms of <i>Chaetetes</i> . . . . .	320
XV. Normal and Meandrine Forms of <i>Chaetetes</i> . . . . .	320
XVI. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	392
XVII. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	400
XVIII. Fossil Plants from the Bristol and Somerset Coalfield . . . . .	408
XIX. New Carboniferous Gastropods from the Isle of Man . . . . .	438
XX. Quarry in the Old Red Sandstone and Km. Beds, Westbury- on-Trym . . . . .	464
XXI. Views of Barbados . . . . .	504
XXII. Scotland Fossils, Barbados . . . . .	504
XXIII. Scotland Fossils, Barbados . . . . .	504
XXIV. Scotland Fossils, Barbados . . . . .	504
XXV. Trinidad: View of the Range. . . . .	551

## LIST OF ILLUSTRATIONS IN THE TEXT.

	PAGE
The Togo and Buem Series of Western Togoland . . . . .	3
The Buem Volcanic Group of Western Togoland . . . . .	9
The Oti Series of Western Togoland . . . . .	17
Sections of sedimentary and volcanic rocks from Western Togoland . . . . .	20
Geological Map of part of the South-Eastern Desert of Egypt . . . . .	35
Inner (thecal) side of the two stipes of <i>Dictyonema flabelliforme</i> . . . . .	51
Serial section of a stipe of ditto . . . . .	53
Longitudinal section of ditto . . . . .	54
Reconstructed longitudinal section ditto . . . . .	56
Reconstructed front elevation ditto . . . . .	56
A and B, Reconstruction of hydrothecae. C and D, Reconstruction of bithecae of ditto . . . . .	57
Diagrammatical vertical section showing hydrothecae and bithecae with dissepiments, ditto . . . . .	60
Diagrammatical Reconstruction of part of a branch of <i>D. flabelliforme</i> . . . . .	61
Diagrams showing the disposition of dissepiments in <i>D. flabelliforme</i> . . . . .	61
Transverse section of <i>D. rarum</i> (after Wiman) . . . . .	62
Early growth stage of a colony in <i>D. flabelliforme</i> . . . . .	64
Early developmental stages in <i>D. flabelliforme</i> . . . . .	65
Sketch-map of S.W. Lleyln . . . . .	130
Micro-section of quartz-calc-schist . . . . .	134
Geological map of the country round Sandy and Biggleswade . . . . .	199
Map of lower surface of the Mesozoic rocks of the S.E. of England . . . . .	211
Map of the trend-lines of the Midlands . . . . .	214
Quartz-porphry, Scilly Isles . . . . .	225
Diagram showing character of relative motion of land and sea in glacial times in Fennoscandia . . . . .	231
Diagram showing the relative motions of land and sea in the British Isles in glacial times . . . . .	233
The Coniston Limestone Series of the Kentmere District . . . . .	266
<i>Halicyme johnsoni</i> Woodward. Base of antenna . . . . .	291
<i>Halicyme johnsoni</i> Woodward. Reflected labrum . . . . .	292
<i>Halicyme johnsoni</i> Woodward. Labrum and metastoma . . . . .	292
<i>Halicyme johnsoni</i> Woodward. Caudal fork . . . . .	293
<i>Halicyme johnsoni</i> Woodward. Ventral surface . . . . .	293
<i>Halicyme</i> sp. Ventral surface with three rami of limbs . . . . .	294
<i>Halicyme</i> . Reconstruction of details of the under side . . . . .	295
<i>H. johnsoni</i> Woodward. Two protopodites . . . . .	296
<i>Halicyme</i> sp. Protopodites and two rami . . . . .	297
Enlarged restoration of limb of <i>Halicyme</i> . . . . .	298
Section through suckers and dorsal prominences of <i>Halicyme</i> . . . . .	299
<i>C. rankini</i> after Woodward . . . . .	300
<i>Cyclus communis</i> Rogers. Diagram showing position of supposed compound eye . . . . .	301
Diagram showing how the carapace of <i>Halicyme</i> may have arisen from the fusion of three pleurae . . . . .	302
Section across the quartzitic ridge of the Frenchman, Eyre Peninsula . . . . .	310
Chloritoid developing from andalusite in chloritoid-andalusite schist . . . . .	313
<i>Stylophyllopsis rugosa</i> and <i>S. mucronata</i> . . . . .	352
<i>Stylophyllopsis mucronata</i> and <i>S. victoriae</i> . . . . .	359
Thermal diagram of lime-silicate minerals . . . . .	364
Minor Structures in the Lower Greensand of W. Kent and E. Surrey . . . . .	442
Course of the Evishanoran Esker . . . . .	453

	PAGE
Course of the Evishanoran, Dunnamore and Davagh Eskers . . . . .	457
Sketch-map of the Kukuruku Hills area, Nigeria . . . . .	459
Gneiss, East of Indogun . . . . .	460
Vertical section of the Km. Beds, Westbury-on-Trym . . . . .	465
Plan of the grounds, St. Monica's Home, Westbury-on-Trym . . . . .	466
Temperature-depth curves based on a cooling earth 1,600 million years old	506
Curve showing the assumed downward distribution of radium . . . . .	510
Sketch-map of part of the riverine tract of Burma . . . . .	519
Diagrammatic section, showing variation in lithology in the Peguan, Central Burma . . . . .	320
Sketch-map of the Irrawaddy River south of Thayetmyo . . . . .	523
Sketch-map of the Myebye Chaung . . . . .	525
Vertical section of the Upper Peguan, Migyaungye . . . . .	526
Diagrammatic section to illustrate continental or oceanic sub-structures	532
Diagram showing in idealized form the cycles of earth-movements . . . . .	538