

THE
QUARTERLY JOURNAL

OF THE

GEOLOGICAL SOCIETY OF LONDON.

EDITED BY

THE PERMANENT SECRETARY OF THE GEOLOGICAL SOCIETY.

Quod si cui mortalium cordi et curæ sit non tantum inventis hæere, atque iis uti, sed ad ulteriora penetrare; atque non disputando adversarium, sed opere naturam vincere; denique non belle et probabiliter opinari, sed certo et ostensive scire; tales, tanquam veri scientiarum filii, nobis (si videbitur) se adjungant — *Novum Organum, Prefatio.*

VOLUME THE EIGHTIETH,
FOR 1924.

LONDON :

LONGMANS, GREEN, AND CO.

PARIS: CHARLES KLINCKSIECK, 11 RUE DE LILLE.

SOLD ALSO AT THE APARTMENTS OF THE SOCIETY.

MCMXXIV.

List
OF THE
OFFICERS
OF THE
GEOLOGICAL SOCIETY OF LONDON.

Elected February 15th, 1924.

President.

John William Evans, C.B.E., D.Sc., LL.B., F.R.S.

Vice-Presidents.

John Smith Flett, O.B.E., M.A., LL.D., B.Sc., M.B., F.R.S. Prof. Albert Charles Seward, Sc.D., F.R.S., F.L.S.		Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S. Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.
--	--	--

Secretaries.

Walter Campbell Smith, M.C., M.A.		James Archibald Douglas, M.A., D.Sc.
-----------------------------------	--	--------------------------------------

Foreign Secretary.

[Vacant.]

Treasurer.

| Robert Stansfield Herries, M.A.

COUNCIL.

Frederick Noel Ashcroft, M.A., F.C.S.	William Dickson Lang, M.A., Sc.D.
Prof. Percy George Haunall Boswell, O.B.E., D.Sc.	Tressilian Charles Nicholas, O.B.E., M.A.
Prof. Arthur Hubert Cox, D.Sc., Ph.D.	Prof. Sidney Hugh Reynolds, M.A., Sc.D.
Henry Dewey.	Prof. Albert Charles Seward, Sc.D., F.R.S., F.L.S.
James Archibald Douglas, M.A., D.Sc.	Walter Campbell Smith, M.C., M.A.
Gertrude Lilian Elles, M.B.E., D.Sc.	Leonard James Spencer, M.A., Sc.D.
John William Evans, C.B.E., D.Sc., LL.B., F.R.S.	Sir Aubrey Strahan, K.B.E., Sc.D., LL.D., F.R.S.
John Smith Flett, O.B.E., M.A., LL.D., D.Sc., M.B., F.R.S.	Prof. William Whitehead Watts, LL.D., Sc.D., M.Sc., F.R.S.
Frederick Henry Hatch, O.B.E., Ph.D.	Henry Woods, M.A., F.R.S.
Prof. Herbert Leader Hawkins, D.Sc.	Sir Arthur Smith Woodward, LL.D., F.R.S., F.L.S.
Robert Stansfield Herries, M.A.	
Sir Thomas Henry Holland, K.C.S.I., K.C.I.E., D.Sc., F.R.S.	

Permanent Secretary.

L. L. Belinfante, M.Sc.

Librarian.

Arthur Greig.

STANDING PUBLICATION COMMITTEE.

Dr. J. W. Evans, <i>President.</i>		
Mr. W. Campbell Smith. Dr. J. A. Douglas.	} <i>Secretaries.</i>	Mr. R. S. Herries, <i>Treasurer.</i>
Dr. F. A. Bather. Prof. P. G. H. Boswell. Dr. J. S. Flett. Dr. W. D. Lang.	Mr. T. C. Nicholas. Prof. S. H. Reynolds. Dr. L. J. Spencer.	Sir Aubrey Strahan. Prof. W. W. Watts. Mr. H. Woods.

TABLE OF CONTENTS.

	Page
BAMBER, Miss AGNES ELIZABETH. The Avonian of the Western Mendips, from the Cheddar Valley Railway to the Sea, West of Brean Down (Abstract)	182
BOLTON, HERBERT. On a New Form of Blattoid from the Coal Measures of the Forest of Dean (Plate III)	17
BOULTON, WILLIAM S. On a Recently Discovered Breccia-Bed underlying Nechells (Birmingham), and its Relations to the Red Rocks of the District (Plate XXV).....	343
COBBOLD, EDGAR STERLING. Cambrian Fossils from the Nechells Breccia	365
COX, ARTHUR HUBERT (& H. H. THOMAS). The Volcanic Series of Trefgarn, Roch, and Ambleston, Pembrokeshire (Plate XL) .	520
DAVIES, RICHARD (& A. HEARD). The Old Red Sandstone of the Cardiff District	489
DIXON, ERNEST EDWARD LESLIE (& L. J. WILLS). The Late-Glacial Gravels of the Upper Worfe and the Tong Brook	308
DOLLO, LOUIS (& P. TEILHARD DE CHARDIN). Les Gisements de Mammifères Paléocènes de la Belgique	12
FARQUHARSON, DONALD JOHN. The Geology of Southern Guernsey (Plate XXVI)	374
GARWOOD, EDMUND JOHNSTON (& E. GOODYEAR). The Lower Carboniferous Succession in the Settle District and along the Line of the Craven Faults (Plates X-XXI)	184
GOODYEAR, Miss EDITH. See above.	
GREEN, JOHN FREDERICK NORMAN. The Structure of the Bownmore-Portaskaig District of Islay (Plates V & VI)	72
GREENLY, EDWARD (& S. H. REYNOLDS). The Geological Structure of the Clevedon-Portishead Area, Somerset (Plate XXXIX) .	447

	Page
HAUGHTON, SIDNEY HENRY. On Reptilian Remains from the Karroo Beds of East Africa (Plates I & II)	1
HAWKES, LEONARD. On an Olivine-Dacite in the Tertiary Volcanic Series of Eastern Iceland: the Rauthaskritha, Hamarfjord (Plates XLI & XLII)	549
HEARD, ALBERT (& R. DAVIES). The Old Red Sandstone of the Cardiff District	489
JONES, OWEN THOMAS. The Upper Towy Drainage-System (Plates XLIII-XLV)	568
KENNARD, ALFRED SANTER (& B. B. WOODWARD). The Pleistocene Non-Marine Mollusca [from the River-Gravels of the Oxford District] (Plate IX)	170
LEWIS, HERBERT PRICE. Upper Viséan Corals of the Genus <i>Caminia</i> (Plates XXVII-XXX)	389
LONGSTAFF, MRS. JANE. Description of Gasteropoda, chiefly in Mrs. Robert Gray's Collection, from the Ordovician and Lower Silurian of Girvan (Plates XXXI-XXXVIII)	408
OSMAN, CHARLES WILLIAM. The Geology of the Northern Border of Dartmoor between Whiddon Down and Butterdon Down (Plate XXIV)	315
REYNOLDS, SIDNEY HUGH. The Igneous Rocks of the Tortworth Inlier (Plates VII & VIII)	106
— (& E. GREENLY). The Geological Structure of the Clevedon-Portishead Area, Somerset (Plate XXXIX)	447
SANDFORD, KENNETH STUART. The River-Gravels of the Oxford District	113
SPILLER, REGINALD CHARLES. Mineralogical Notes [on River-Gravels of the Oxford District]	176
TEILHARD DE CHARDIN, P. (& L. DOLLO). Les Gisements de Mammifères Paléocènes de la Belgique	12
THOMAS, HERBERT HENRY (& A. H. COX). The Volcanic Series of Trefgarn, Roch, and Ambleton, Pembrokeshire (Plate XL)	520
TILLEY, CECIL EDGAR. Contact-Metamorphism in the Comrie Area of the Perthshire Highlands (Plate IV)	22
WALLIS, FREDERICK STRETTON. The Avonian of the Tytherington-Tortworth-Wickwar Ridge, Gloucestershire (Abstract)	180
WILLS, LEONARD JOHNSTON. The Development of the Severn Valley in the Neighbourhood of Iron-Bridge and Bridgnorth (Plates XXII & XXIII)	274
WOODWARD, SIR ARTHUR SMITH. On a Hybodont Shark (<i>Tristychius</i>) from the Calciferous Sandstone Series of Eskdale (Dumfriesshire)	338

TABLE OF CONTENTS.

v
Page

WOODWARD, BERNARD BARHAM (& A. S. KENNARD). The Pleis- tocene Non-Marine Mollusca [from the River-Gravels of the Oxford District] (Plate IX)	170
WRIGHT, WILLIAM BOURKE. Age and Origin of the Lough Neagh Clays	468

PROCEEDINGS.

Proceedings of the Meetings	i, xviii
Annual Report	vi
Lists of Donors to the Library	xi
List of Foreign Members	xxii
List of Foreign Correspondents	xxiii
List of Wollaston Medallists	xxiv
List of Murchison Medallists	xxv
List of Lyell Medallists	xxvi
Lists of Bigsby and Prestwich Medallists	xxviii
Applications of the Barlow-Jameson Fund and Awards from the Daniel-Pidgeon Fund	xxix
Financial Report	xxx
Awards of the Medals and Proceeds of Funds	xxxviii
Anniversary Address of the President	xlvi

HAWKINS, HERBERT LEADER. Anatomical Preparations of Fossil Echinoids [<i>title only</i>]	iii
SOLLAS, WILLIAM JOHNSON. Demonstration of the Method of Investigating Fossils by Serial Sections [<i>title only</i>]	iii
SUSSMILCH, CARL ADOLPH. The Geological History of South- Eastern Australia, with special reference to the Carboni- ferous and Permian Periods	ci
WALTON, JOHN. Investigation of the Nature of Fossil Plants [<i>title only</i>]	iii

LIST OF THE FOSSILS FIGURED AND DESCRIBED
IN THIS VOLUME.

Name of Species.	Formation.	Locality.	Page			
SPONGIDA.						
<i>Pennatites</i> sp., pl. xviii, fig. 2	Lower Carboniferous	Ingleborough....	204			
ACTINOZOA.						
<i>Autophyllum concentricum</i> , sp. nov., pl. xvi, figs. 1 a, 1 b, & 2	Lower Carboniferous.	Ingleton	259			
<i>Cavinia burtonensis</i> , sp. nov., pl. xxx, figs. 3 a-3 f		Park Hill	400-402			
— <i>juddi</i> , pls. xxvii xxix & text-figs. 1-2		Various	391-97			
— var. <i>caubrensis</i> nov., pl. xxx, figs. 1 a-1 c & 2		Treflach Wood	357-98			
<i>Dibunophyllum aspidiophyllo-</i> <i>ides</i> , sp. nov., pl. xvi, figs. 3 a & 3 b		Lower Carboniferous.	Ingleton	260		
— <i>burtonense</i> , nom. nov., pl. xvi, figs. 5 a & 5 b					Ingleton	259
— <i>bristolense</i> , nom. nov., pl. xvi, figs. 6 a & 6 b						
<i>rhodophylloides</i> , sp. nov., pl. xvii, figs. 2 a & 2 b					Penyghent	261
— sp., aff. <i>D. matlockense</i> , pl. xvii, figs. 1 a & 1 b					Penyghent	260
— sp., cf. <i>Histiophyllum</i> <i>dicki</i> , pl. xvi, figs. 4 a & 4 b.					Ingleton	260
<i>Lithostrotion arachnoideum</i> , pl. xviii, figs. 4 a & 4 b					Scaleber Quarry.	262
<i>Lophophyllum</i> [<i>Koninckophyl-</i> <i>lum</i>] <i>magnificum</i> , pl. xvii, figs. 3 a-3 c					Penyghent	262
<i>Rhodophyllum distans</i> , sp. nov., pl. xvii, figs. 4 a, 4 b, & pl. xviii, fig. 3					Penyghent	261
<i>Zaphrentis</i> sp., aff. <i>Z. nodosa</i> , pl. xviii, fig. 5						
— spp., pl. xviii, figs. 6 a, 6 b, 7, & 8		Settle district....	262-63			

Name of Species.	Formation.	Locality.	Page
BRACHIOPODA.			
<i>Productus pugilis</i> , pl. xviii. fig. 1	Lower Carboniferous	Back Scar	205
LAMELLIBRANCHIA.			
<i>Sphaerium radleyense</i> , sp. nov., pl. ix, figs. 7-10	Pleistocene	Oxford district.	174-75
<i>Unio prestwichi</i> , sp. nov., pl. ix. figs. 2-6			
GASTROPODA.			
<i>Bembexia globosa</i> , sp. nov., pl. xxxv, figs. 8 a-8 c	Upper Ordovician.	Thraive Glen ...	416
<i>Catozone striatula</i> , sp. nov., pl. xxxiv, fig. 3	Lower Ordovician.	Balclatchie	426
<i>Clathrospira trochiformis</i> , pl. xxxii, figs. 11-13		Ardmillan	415
<i>Clisospira balclatchiensis</i> , sp. nov., pl. xxxiii, fig. 11		Balclatchie	439
— <i>reticulata</i> , sp. nov., pl. xxxiii, figs. 10 a & 10 b	Upper Ordovician.	Thraive Glen ...	440
<i>Donaldiella perneri</i> , sp. nov., pl. xxxiv, fig. 5	Middle Llandovery.	Woodland Point	426
<i>Eccyliomphalus balclatchiensis</i> , sp. nov., pl. xxxviii, figs. 4 a, 4 b, 5 a, & 5 b	Lower Ordovician.	Balclatchie	434
— <i>bucklandi</i> , pl. xxxviii. figs. 1 a-2 b	Caradocian.	Desertcreat	433
— (?) <i>macromphalus</i> , pl. xxxviii, figs. 8-11	Lower Ordovician.	Various	435
— <i>minor</i> , pl. xxxviii, fig. 3 .	Caradocian.	Desertcreat	433
— <i>mullockensis</i> , sp. nov., pl. xxxvii, figs. 10 a-10 c ...	Lower Llandovery.	Mullock Hill ...	435
— <i>scotica</i> , pl. xxxviii, figs. 6 a, 6 b, & 7	Lower Ordovician.	Knockdolian Quarry	434
<i>Eotomaria convexa</i> , sp. nov., pl. xxxii, figs. 6 a & 6 b	Upper Ordovician.	Drummuck	414
— <i>subplana</i> , sp. nov., pl. xxxii, fig. 10	Lower Ordovician.	Balclatchie	415
— <i>thraivensis</i> , sp. nov., pl. xxxii, figs. 7-9	Upper Ordovician.	Thraive Glen ...	414
<i>Euomphalopterus ordovicus</i> sp. nov., pl. xxxvi, figs. 5-9 ...	Ordovician	Girvan district .	439
<i>Girvania excavata</i> , sp. nov., pl. xxxv, figs. 2 a, 2 b, 3, & 4	Middle Ordovician.	Shallock Mill ...	430
<i>Hormotoma nigra</i> , sp. nov., pl. xxxv, fig. 5	Middle Ordovician ...	Shallock Mill ...	425

Name of Species.	Formation.	Locality.	Page
GASTROPODA (continued).			
<i>Hormotoma (?) nitida</i> , sp. nov., pl. xxxiv, fig. 4	Lower Ordovician ...	Balclatchie	425
<i>Lesueurilla balclatchiensis</i> , sp. nov., pl. xxxvi, figs. 14 a & 14 b			
— <i>scotica</i> , sp. nov., pl. xxxvi, figs 10-13			437
<i>Liospira equalis</i> , pl. xxxii, figs. 3 & 4			Various
— <i>disciformis</i> , sp. nov., pl. xxxii, figs. 1-3	410		
— <i>lenticularis</i> , pl. xxxii, figs. 5 a-5 c	Upper Llandovery...	Peckill	413
— <i>striatula</i> , pl. xxxi, figs. 4-5 & pl. xxxii, figs. 1-2 ...	Lower Ordovician ...	Girvan district .	411
<i>Lophospira cancellatula</i> , pl. xxxiii, figs. 1 & 2. 4	Llandovery.....	Various	419, 420
— var. <i>tenuistriata</i> nov., pl. xxxiii, fig. 3.....	Middle Llandovery...	Woodland Point	420
— <i>obliquestriata</i> , sp. nov., pl. xxxiii, fig. 8	Lower Ordovician ...	Balclatchie	417
— <i>pteronoides</i> , sp. nov., pl. xxxiii, figs. 9 a-9 c	Middle Llandovery...	Woodland Point	418
— <i>shallockensis</i> , sp. nov., pl. xxxiv, fig. 1	Middle Ordovician ...	Shallock Mill ...	417
— <i>thraicensis</i> , sp. nov., pl. xxxiii, figs. 5 & 6	Upper Ordovician ...	Thraive Glen ...	420
— <i>woodlandi</i> , sp. nov. pl. xxxiii, figs. 7 a & 7 b	Middle Llandovery ...	Woodland Point	418
<i>Maclurea salteri</i> , sp. nov., pl. xxxvii, figs. 6-9 c	Lower Ordovician ...	Girvan district .	432
— <i>sedgwicki</i> , nom. nov., pl. xxxvii, figs. 1-5			
<i>Omospira (?) depressa</i> , sp. nov., pl. xxxiv, figs. 2 a & 2 b.....		Balclatchie	427
<i>Phanerotrema mcgoyi</i> , nom. nov., pl. xxxvi, figs. 1 a & 1 b	Lower Llandovery...	Mullock Hill ...	423
— <i>rugosa</i> , sp. nov., pl. xxxvi, figs. 2-4	Middle Llandovery ...	Woodland Point	423
<i>Plethospira (?) calcdontensis</i> , sp. nov., pl. xxxv, figs. 6 a, 6 b, & 7	Lower Ordovician ...	Balclatchie	424
<i>Promourlonia ambigua</i> , sp. nov., pl. xxxv, figs. 9 a-9 c	Llandovery.....	Bargany Pond Burn	422
— <i>furcata</i> , sp. nov., pl. xxxv, figs. 10 a-10 c			
<i>Rhabdostropha (?) latissinuat</i> , sp. nov., pl. xxxv, figs. 1 a & 1 b	Middle Ordovician ...	Shallock Mill ...	428
— <i>primitiva</i> , sp. nov., pl. xxxiv, figs. 9-11			428
<i>Spiracua girvanensis</i> , sp. nov., pl. xxxiv, figs. 6-8	Ordovician	Girvan district	429

Name of Species.	Formation.	Locality.	Page
INSECTA.			
<i>Dryitrookia cubitalis</i> , sp. nov., pl. iii	Coal Measures.	Harrow Hill	17-20
		Mine	
ELASMOBRANCHIA.			
<i>Tristychius arcuatus</i> fig. on p. 339	Calceiferous Sandstone Series	Eskdale	338-42
REPTILIA.			
<i>Tangasaurus memelli</i> , gen. et sp. nov., pls. i & ii & text- figs. 1-3	Karoo Beds ...	Tanga	1-11
ALGÆ [?].			
<i>Girvanella</i> sp., pl. xix, figs. 1- 3	Lower Carboniferous.	Settle district...	200, 203

EXPLANATION OF THE PLATES.

PLATES		PAGE
I & II	{ <i>TANGISAUURUS MENNELLI</i> , gen. et sp. nov., illustrating Dr. S. H. Haughton's paper on Reptilian Remains from the Karroo Beds of East Africa	1
PLATE		
III	{ <i>DRYBROOKIA CRIBRATA</i> , gen. et sp. nov., illustrating Dr. H. Bolton's paper on that fossil insect.....	17
IV	{ MICROSCOPE-SECTIONS OF HORNFELSES FROM THE COMRIE DISTRICT, illustrating Dr. C. E. Tilley's paper on Contact-Metamorphism in that area	22
PLATES		
V & VI	{ OVERTOLD IN THE CALCAREOUS PASSAGE-BEDS, EASTERN ISLAY; BOWMORE FLAGS, NORTH OF RUDHA BEIDHE; and GEOLOGICAL MAP OF THE COUNTRY ABOUT BRIDGEND (ISLAY), illustrating Mr. J. F. N. Green's paper on the Structure of the Bowmore-Portaskaig District	72
VII & VIII	{ MICROSCOPE-SECTIONS OF PYROXENE-ANDESITES; and JUNCTION OF BASALT AND INCLUDED BLOCK OF SANDSTONE, DAMERY QUARRY, illustrating Prof. S. H. Reynolds's paper on the Igneous Rocks of the Tortworth Inlier.....	106
PLATE		
IX	{ <i>UNIO PRESTWICHII</i> sp. nov. and <i>SPHERIUM RADLEYENSE</i> sp. nov., illustrating the paper by Mr. A. S. Kennard & Mr. B. B. Woodward on the Pleistocene Non-Marine Mollusca of the Oxford River-Gravels.....	170
PLATES		
X-XXI	{ VIEW OF SETTLE, LOOKING EAST; UNCONFORMITY AT THORNTON FORCE and NODULAR CORAL-BED AT MEAL BANK QUARRY; COAL-SEAM, ETC. AT MEAL BANK QUARRY; THRUSTS IN MEAL BANK QUARRY AND AT STORRS COMMON; MIDDLE CRAVEN FAULT SEEN FROM MALHAM AND KNOLL-LIMESTONE, ETC. AT HIGH HILL; SYNCLINE IN CHERTY LIMESTONE AT HIGH HILL AND KNOLL-STRUCTURE AT GREAT SCAR; <i>ACLOPHYLLUM</i> and <i>DICUNOPHYLLUM</i> ; the last-named with <i>LOPHOPHYLLUM</i> and <i>RHODOPHYLLUM</i> ; <i>PROBUCCUS</i> , <i>PELMATITES</i> , <i>RHODOPHYLLUM</i> , and <i>ZAPHRENTIS</i> ; <i>GIRINELLA</i> . BEAN-SHAPED ORGANISMS, and QUARTZ-CRYSTALS; GEOLOGICAL MAP OF THE SETTLE DISTRICT; and GEOLOGICAL MAP OF THE DISTRICT BETWEEN THE CRAVEN FAULTS, illustrating the paper by Prof. E. J. Garwood & Miss E. Goodyear on the Lower Carboniferous Succession in the Settle District	184

EXPLANATION OF THE PLATES.

xi

PLATES		PAGE
XXII & XXIII	{ GEOLOGICAL MAP OF THE IRON-BRIDGE GORGE AND THE WORFE VALLEY; and LONGITUDINAL SECTIONS ALONG THE SEVERN VALLEY, THE WORFE, AND THE MAD BROOK, illustrating Dr. L. J. Wills's paper on the Development of the Severn Valley in the Neighbourhood of Iron-Bridge and Bridgnorth	274
PLATE		
XXIV	{ MICROSCOPE-SECTIONS OF NORTH DARTMOOR ROCKS, illustrating Mr. C. W. Osman's paper on the Geology of the Northern Border of Dartmoor. }	315
XXV	{ SECTIONS ILLUSTRATING THE OVERSTEP OF THE CLENT BRECCIA IN THE CLENT-LICKEY AREA, illustrating Prof. W. S. Boulton's paper on the Breccia-Bed underlying Nechells..... }	343
XXVI	{ GEOLOGICAL MAP OF SOUTHERN GUERNSEY, illustrating Mr. D. J. Farquharson's paper on that area	374
PLATES		
XXVII-XXX	{ <i>CANINIA JUDDI</i> , <i>C. JUDDI</i> var. <i>CAMBRENSIS</i> , and <i>C. BUNTONENSIS</i> , illustrating Mr. H. P. Lewis's paper on Upper Viséan Corals of the Genus <i>CANINIA</i>	389
XXXI-XXXVIII	{ <i>LIOSPIRA</i> , <i>EOTOMARIA</i> , and <i>CLATHROSPIRA</i> ; <i>LOPHOSPIRA</i> and <i>CLISOSPIRA</i> ; <i>PLECROTOMARIDÆ</i> and <i>LOXONEMATIDÆ</i> ; <i>PLANEROTREMA</i> , <i>ECOMPHALOPTERUS</i> , and <i>LESVEURILLA</i> ; and <i>MACLUREA</i> and <i>ECYLIOMPHALUS</i> , illustrating Mrs. J. Longstaff's paper on Ordovician and Lower Silurian Gasteropoda from Girvan..... }	408
PLATE		
XXXIX	{ GEOLOGICAL MAPS OF THE CLEVEDON-PORTISHEAD AREA, OF THE PORTISHEAD PROMONTORY, AND OF CLEVEDON, illustrating the paper by Prof. S. H. Reynolds & Dr. E. Greenly on the Geological Structure of that district	447
XI	{ GEOLOGICAL MAP OF THE TREFGARN-RŴCH-AMBLESTON DISTRICT, illustrating the paper by Dr. H. H. Thomas & Prof. A. H. Cox on the Volcanic Series of that area	520
PLATES		
XLI & XLII	{ THE WESTERN END OF THE RAUTHASKRITHA and BASALTS and DACITE; and MICROSCOPE-SECTIONS OF IGNEOUS ROCKS FROM HJAMARFJORD, illustrating Mr. L. Hawkes's paper on an Olivine-Dacite in the Tertiary Volcanic Series of Eastern Iceland	549
XLIII-XLIV	{ CONTOURED MAP OF THE TOWY BASIN ABOVE RHANDIRMWYN; PROFILES OF THE TOWY VALLEY AND ITS PRINCIPAL TRIBUTARIES ABOVE RHANDIRMWYN; and PROFILES OF THE TOWY, PYSGOTWR, CAMDDWR, AND COTHU, illustrating Prof. O. T. Jones's paper on the Upper Towy Drainage-System..... }	568

PROCESS-BLOCKS AND OTHER ILLUSTRATIVE FIGURES
 BESIDES THOSE IN THE PLATES.

	PAGE
FIG. 1. <i>Tanagasaurus mearnsi</i> : outline drawing of the ventral view of a left front limb	3
2. Outline drawing of sacral region of the same individual .	4
3. Outline drawing of the right hind limb (ventral view) of the same individual	5
-- Geological sketch-map of the Comrie area (Perthshire)...	26
1. Index sketch-map of part of Islay	76
2. Sections along parts of the eastern and northern coasts of Islay.....	82
3. Map and section of the country east of Loch Lossit	96
1. Topographical map of the Oxford district	114
2. Thalweg of the Upper Thames, etc.	118
3. Thalweg of the Evenlode and Cherwell, etc.	119
4. Plateau Drift, Duke's Brickyard, Coombe, near Woodstock	122
5. Solution-pits exposed at Kirtlington	126
6. Section of the Wolvercote Terrace at Chadlington... ..	129
7. Section of the same at Wolvercote	130
8. Section showing the same, the Wolvercote Channel cut in it, and the Summertown Terrace.....	131
9. Section showing the relations of the various beds of the Wolvercote Channel and the older Terrace-gravel.....	133
10. Swirl-holes at the bottom of the Wolvercote Channel basement-gravel	134
11. Summertown-Radley Terrace at Eynsham	139

	PAGE
FIG. 12. The same at Webb's Pit, Summertown	141
13. The same at Magdalen College Grove	143
14. Borings in the Sunk Channel, taken across the river-valley, west of Oxford	149
15. Section at Cox Pit, Gilburn Farm, Drayton	151
16. Section across the Thames and Cherwell valleys	152
17. Diagrammatic section of the complete series of superficial deposits of the Upper Thames Basin in the neighbourhood of Oxford	160
1. Sketch-map of limestone-domes west of Pateley Bridge .	250
2. Sketch-map illustrating the general character of the movements in the neighbourhood of the Craven Faults	256
1. Section in the pit by the railway, near Buildwas Abbey .	278
2. Sections transverse to the Severn Valley	280
3. Sketch-map of the valley of the Horsehay Brook	281
4. Sandpit, Hill Lane, Cuckoo Oak, Madeley	282
5. Gravel- and sand-pit, Dean Corner, Willey Park, near Broseley	288
6. Sections through Knowlesands Hill and Cliff Coppice ...	292
7. Skeleton-map of the Iron-Bridge Gorge and the Worfe Vale	302
— Geological sketch-map of the northern border of Dartmoor	316-17
— <i>Tristychius arcuatus</i>	339
1. Sections illustrating the position and relations of the Nechells Breccia	344
2. General succession of the beds in the Clent-Lickey area .	357
3. Section from Hamstead Colliery to the Walsall Road ...	361
1. Enlarged map of part of the coast south of St. Peter Port	376
2. Sketch-plans, showing change in the strike of gneiss-foliation produced by planes of dislocation	377
3. Fractured aplite-vein, etc. at Petit Port Bay	382
4. Sill-like intrusion of diorite at Fort Bay	386
1. The development of the dissepimental tissue in <i>Caninia juddi</i>	393
2. Probable evolutionary stages in the derivation of the 'herring-bone' type of dissepimental arrangement from the Caninoid type	402
1. Geological map of the neighbourhood of Fore Hill and Weston Big Wood	450

	PAGE
FIG. 2. Section from Black Nore Point to Weston Big Wood ...	451
3. Section through West Hill and Fore Hill	451
4. Section from Battery Point to Portishead Station	452
5. Sketch-map of the neighbourhood of Portishead Pier Station	453
6. Section from Portishead Pier Station to Eastwood House	454
7. Diagrammatic section showing the suggested relationship of the Portishead rocks	456
8. Section along the western side of East Clevedon Gap ...	458
9. Section through Dial Hill	458
10. Section across the Hill-Road Crag disturbance	463
1. Section of the Washing Bay borehole	470
2. Section of the main lignite in that bore	472
3. Sketch-map showing the probable relation of the Lough Neagh Beds to the Coalisland-Templepatrick Fault, etc.	480
1. Sketch-map of the Cardiff district, showing the outcrop of the Coed-y-Coedcae Fish-Band	491
2. Diagram showing the approximate proportions of the more important constituents of the Old Red Sandstone of the Cardiff district	508
-- Generalized section along the Cleddau Valley from Ford to Spittal Tunnel	524
1. Elevation of the Rauthaskritha cliff	551
2. Detail of the base of the dacite	552
3. Detail of the lower eastern corner exposure of dacite ...	553
4. Relationship of the overlying basalts to the dacite at the eastern end of the upper obsidian exposure	553
5. Diagrammatic sections illustrating subsidence of basalts, extrusion of dacite, etc.	555
6. Plan of the Rauthaskritha	556
7. Spherulitic rock	558
1. Geological sketch-map of the Towy Basin above Rhandirwryn	571
2. Upper part of the Towy Valley, showing mature features	577
3. The Towy Valley above Fanog	577
4. The Camddwr Valley above Rhydymerch	580
5. The Trawsnant tributary valley ..	599
6. Map of the district near Ystradflin	606

Corrigendum.

P. 259, line 22 from the bottom. For '*Dibunophyllum vaughani*', read '*Dibunophyllum bourtonense*, nom. nov.'

Dates of Issue of the Quarterly Journal for 1924.

No. 317—March 17th, 1924.

No. 318—July 25th, 1924.

No. 319—October 4th, 1924.

No. 320—December 31st, 1924.