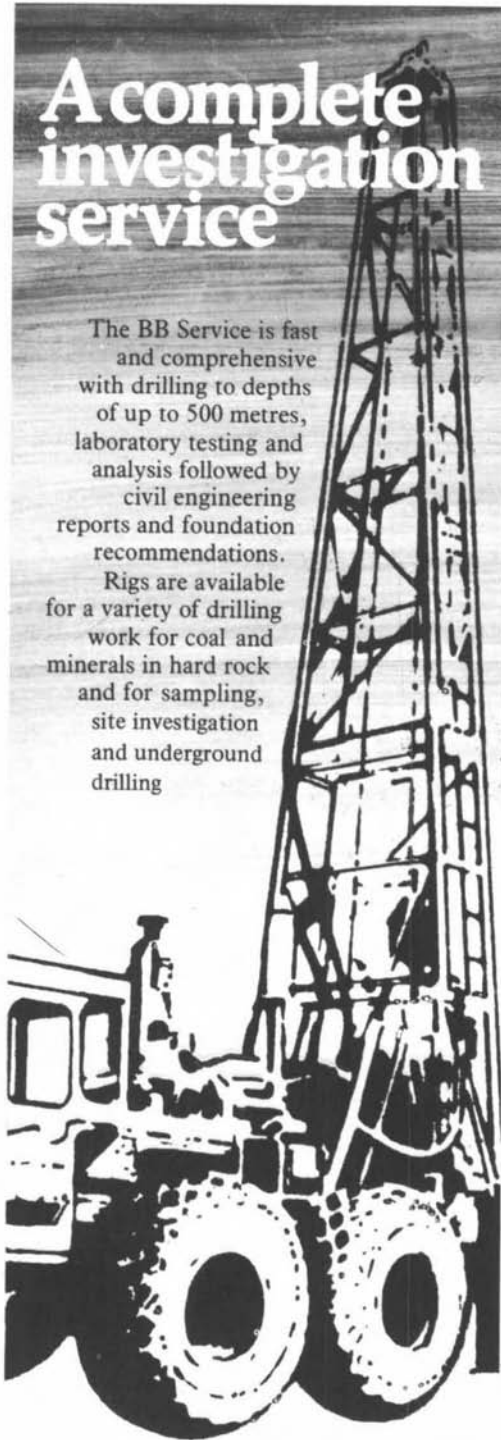


A complete investigation service

The BB Service is fast and comprehensive with drilling to depths of up to 500 metres, laboratory testing and analysis followed by civil engineering reports and foundation recommendations.

Rigs are available for a variety of drilling work for coal and minerals in hard rock and for sampling, site investigation and underground drilling



Ask for full details from



BB Drilling Limited
P.O. Box No. 1, Station
Approach, East Boldon,
Tyne & Wear NE36 0SL
Telephone (0783) 368444

Geological Magazine

with which is incorporated

The Geologist

founded in 1864 by the late DR HENRY WOODWARD, F.R.S.

Edited by W. B. HARLAND, M.A.
C. P. HUGHES, M.A.
and G. A. CHINNER, PH.D.

assisted by MRS M. J. MASON

Associate editors

SIR KINGSLEY DUNHAM, D.SC., F.R.S.
MR N. L. FALCON, M.A., F.R.S.
PROFESSOR LEONARD HAWKES, D.SC., F.R.S.
SIR PETER KENT, D.SC., F.R.S.
DR S. R. NOCKOLDS, PH.D., F.R.S.
PROFESSOR F. W. SHOTTON, M.B.E., M.A., SC.D., F.R.S.
SIR JAMES STUBBLEFIELD, D.SC., F.R.S.

Volume 117 of Whole Series

January–December 1980

CAMBRIDGE UNIVERSITY PRESS

CAMBRIDGE

LONDON NEW YORK NEW ROCHELLE

MELBOURNE SYDNEY

PUBLISHED BY
THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
32 East 57th Street, New York, N.Y. 10022

© Cambridge University Press 1980

Pagination and dates of publication of issues in this volume

Number 1:	pp. 1–100	January 1980
2:	pp. 101–210	March 1980
3:	pp. 211–310	June 1980
4:	pp. 311–408	July 1980
5:	pp. 409–516	September 1980
6:	pp. 517–644	November 1980

Printed in Great Britain at the University Press Cambridge

Contents

ARTICLES

(Figures in bold type denote number of issue)

ALLEN, J. R. L.

Sand-wave immobility and the internal master bedding of sand-wave deposits, **5**, 437

ANDREWS-SPEED, C. P.

The geology of central Isla Hoste, southern Chile: sedimentation, magmatism and tectonics in part of a Mesozoic back-arc basin, **4**, 339

BAHAT, Dov.

Hertzian fracture, a principal mechanism in the emplacement of the British Tertiary intrusive centres, **5**, 463

BAHAT, Dov.

Secondary faulting, a consequence of a single continuous bifurcation process, **4**, 373

BUIST, D. S.

Columnar sandstone, Island of Bute, Scotland, **4**, 381

CALLOMON, J. H. & BIRKELUND, T.

The Jurassic transgression and the mid-late Jurassic succession in Milne Land, central East Greenland, **3**, 211

CHERNS, L.

Hardgrounds in the Lower Leintwardine Beds (Silurian) of the Welsh Borderland, **4**, 311

COXON, P., HALL, A. R., LISTER, A. & STUART, A. J.

New evidence on the vertebrate fauna, stratigraphy and palaeobotany of the interglacial deposits at Swanton Morley, Norfolk, **6**, 525

DERBYSHIRE, E. & JONES, P. F.

Systematic fissuring of a matrix-dominated lodgement till at Church Wilne, Derbyshire, England, **3**, 243

DUFF, B. A.

Palaeomagnetism of late Precambrian or Cambrian diorites from Leicestershire, U.K., **5**, 479

FEWTRELL, M. D. & SMITH, D. G.

Revision of the Dinantian stratigraphy of the Craven Basin, N. England, **1**, 37

FREST, T. J. & STRIMPLE, H. L.

New diminutive camerate crinoids from the Ludlow of Oklahoma, **3**, 255

GREEN, C. P., HEY, R. W. & MCGREGOR, D. F. M.

Volcanic pebbles in Pleistocene gravels of the Thames in Buckinghamshire and Hertfordshire, **1**, 59

GRIFFITHS, P. S.

Box-fault systems and ramps: atypical associations of structures from the eastern shoulder of the Kenya Rift, **6**, 579

GUEST, J. E., UNDERWOOD, J. R. & GREELEY, R.

Role of lava tubes in flows from the Observatory Vent, 1971 eruption on Mount Etna, **6**, 601

HENRY, J.-L.

Evolution and classification of some Ordovician Calymenina (Trilobita), **4**, 351

HUGHES, C. P., RICKARDS, R. B. & WILLIAMS, A.

The Ordovician fauna from the Contaya Formation of eastern Peru, **1**, 1

HYDEN, F. M.

Mass flow deposits on a mid-Tertiary carbonate shelf, southern New Zealand, **5**, 409

KEAREY, P. & ALLISON, J. R.

A geomagnetic investigation of Carboniferous igneous rocks at Tickenham, County of Avon, **6**, 587

KELLY, S. R. A. & McLACHLAN, A.

The use of silicone rubbers in the preparation of casts from natural fossil moulds, **5**, 447

KIRK, N. H.

Controlling factors in the evolution of the graptolites, **3**, 277

LANE, P. D. & THOMAS, A. T.

A replacement name for *Rhax* Lane & Thomas, 1978 (Trilobita) *non* Hermann, 1804, **2**, 191

LORD, A. R.

Weichselian (late Quaternary) ostracods from the Sandnes Clay, Norway, **3**, 227

LUDVIGSEN, R. & CHATTERTON, B. D. E.

The ontogeny of *Failleana* and the origin of Bumastinae (Trilobita), **5**, 471

McNAMARA, K. J.

Taxonomy and distribution of Chasmopine trilobites, **1**, 65

MEYERHOFF, A. A.

Petroleum Basins of the Soviet Arctic, **2**, 101

MIDDLEMOST, E. A. K.

A contribution to the nomenclature and classification of volcanic rocks, **1**, 51

MUNN, D. & JACKSON, D. E.

Dedolomitization of Lower Carboniferous Dolostone in the Wirksworth area, Derbyshire, England, **6**, 607

NYAMBOK, I. O.

Petrology and geochemistry of the Alkaline intrusion, Jombo Hill, Kenya, **4**, 327

PHILLIPS, E. R.

On polygenetic myrmekite, **1**, 29

PLIMER, I. R. & NEEF, G.

Early Miocene extrusives and shallow intrusives from Small Nggela, Solomon Islands, **6**, 565

PRICE, D.

A revised age and correlation for the topmost Shoeshook Limestone Formation (Ashgill) of South Wales, **5**, 485

ROZANOV, A. Yu. & SOKOLOV, B. S.

The problem of the Precambrian-Cambrian boundary, **1**, 23

SANDERSON, R. W. & CAVE, R.

Silurian volcanism in the central Welsh Borderland, **5**, 455

SPARKS, R. S. J. & HUANG, T. C.

The volcanological significance of deep-sea ash layers associated with ignimbrites, **5**, 425

- SWARBRICK, R. E. & ROBERTSON, A. H. F.
Revised stratigraphy of the Mesozoic rocks of southern Cyprus, **6**, 547
- TANNER, P. W. G. & MILLER, R. G.
Geochemical evidence for loss of Na and K from Moinian calc-silicate pods during prograde metamorphism, **3**, 267
- THY, P. & WILSON, J. R.
Primary igneous load-cast deformation structures in the Fongen-Hyllingen layered basic intrusion, Trondheim Region, Norway, **4**, 363
- VILADKAR, S. G.
The fenitized aureole of the Newania carbonatite, Rajasthan, **3**, 285
- VORTISCH, W. & LINDSTRÖM, M.
Surface structures formed by wind activity on a sandy beach, **5**, 491
- WALKER, A. D.
The pelvis of *Archaeopteryx*, **6**, 595
- WALTON, E. K., STEPHENS, W. E. & SHAWA, M. S.
Reading segmented grain-size curves, **6**, 517
- WILLIAMS, D. J. & JOHNSON, W.
A note on the formation of fulgurites, **3**, 293
- WILLIAMS, D. M.
Evidence for glaciation in the Ordovician rocks of western Ireland, **1**, 81
- WINCHESTER, J. A.
Variation of metamorphic grade in Lower Strathspey, **2**, 187

CORRESPONDENCE

- ACHARYYA, S. K. and SINHA-ROY, S. & FURNES, H. Geochemistry and geotectonic implication of basic volcanic rocks in the Lower Gondwana sequence (Upper Palaeozoic) of the Sikkim Himalayas, **6**, 621
- ARTHURTON, R. S. & JONES, L. C. and FEWTRELL, M. D. & SMITH, D. G.
Revision of the Dinantian stratigraphy of the Craven Basin, N. England, **6**, 613
- GLAESSNER, M. F. and DEBRENNE, F. Pseudofossils from the Precambrian, including 'Buschmannia' and 'Praesolenopora', **2**, 199
- HARTE, B. Chloritoid-staurolite assemblages in central Perthshire, **6**, 615
- IVIMEY-COOK, H. C. et al.; DONOVAN, D. T. and POOLE, E. G. The Triassic-Jurassic boundary in Great Britain, **6**, 617
- LE BAS, M. J. & SABINE, P. A. Progress in 1979 on the Nomenclature of pyroclastic materials, **4**, 389
- McCONNELL, R. B. The geology of southern Guyana, **2**, 193
- SMITH, P. P. K. and PRICE, G. D. Microstructures in titanomagnetite: a discussion of a paper by G. D. PRICE, **4**, 385
- STUBBLEFIELD, J. The supposed Cambrian at Fobbing, Essex, and the nature of some pre-Carboniferous in the northwestern part of the Kent Coalfield, **4**, 393
- TUNBRIDGE, I. P. Possible Devonian uplift on the Swansea Valley Fault, Wales, **5**, 497

REVIEWS

- Advanced Geological Map Interpretation, **2**, 204
- Ancient Environments (2nd edition), **1**, 92
- Atlantis: Fact or Fiction?, **2**, 201
- Atlas of Economic Mineral Deposits, **2**, 205
- An Atlas of Spectral Interferences in ICP Spectroscopy, **6**, 633
- Basic concepts of computerized digital image processing for geologists, **5**, 505
- British Antarctic Territory. Geological Map. Sheet 2. Northern Graham Land and South Shetland Islands, **6**, 631
- British nearshore Foraminiferids, **2**, 206
- The Caledonides in the U.S.A., **6**, 637
- Climates throughout Geologic Time, **3**, 299
- Colloque sur la limite Jurassique-Crétacé, **3**, 297
- Confidence limits in paleomagnetism: alternatives to Fisher's solution, **5**, 499
- Curation of palaeontological collections, **1**, 93
- Currents in submarine canyons and other seavalleys, **3**, 304
- The Devonian System, **3**, 302
- A Dictionary of the Natural Environment, **6**, 632
- The Earth. Its Origin, Structure and Evolution, **4**, 400
- Ecological Processes in Coastal and Marine Systems, **5**, 510
- Economic Mineral Deposits, **5**, 502
- Effects of acid precipitation on terrestrial ecosystems, **5**, 510
- Element concentrations toxic to plants, animals and man, **6**, 632
- Equilibrium thermodynamics in Petrology. An Introduction, **1**, 87
- Facies Models, **4**, 398
- Fundamentals of Rock Mechanics, **4**, 401
- Geochemical Processes. Water and Sediment Environments, **3**, 298
- Geochemistry in Mineral Exploration, **6**, 633
- Geochemistry of Colloid Systems for Earth Scientists, **4**, 395
- Geocryology. A Survey of Periglacial Processes and Environments, **5**, 503
- Geography and Soil Properties, **5**, 500
- Geology for Civil Engineers, **1**, 92
- Geology of Eastern Canada and adjacent areas (map), **3**, 303
- Geology of the Labrador Shelf, **4**, 403
- The Geology of Snowdonia and Llyn: an outline and field guide, **5**, 499
- Geophysics and Geochemistry in the Search for Metallic Ores, **5**, 505
- Growth conditions of Manganese Nodules. Comparative Studies of Growth Rate, Magnetization, Chemical Composition and Internal Structure, **3**, 306
- History of Concepts in Precambrian geology, **4**, 401
- The Holocene Marine Environment of the Beaufort Shelf, **4**, 399

- Ice Ages: Solving the Mystery, **2**, 203
- Introduction to the study of soils in tropical and subtropical regions, **5**, 506
- Journal of Structural Geology, **3**, 306
- Klimaschwankungen, **5**, 507
- Lower Cretaceous and Jurassic rocks of McDougall Pass area and some adjacent areas of north-central Richardson Mountains, northern Yukon Territory and north-western district of Mackenzie, **5**, 510
- Lower Devonian (Lochkovian) biostratigraphy and brachiopod faunas, Canadian Arctic Islands, **6**, 636
- Lower Wenlock Faunal and Floral dynamics – Vattenfallet Section, Gotland, **5**, 504
- Macroevolution. Pattern and Process, **5**, 508
- Maps for America. Cartographic Products of the U.S. Geological Survey and others, **3**, 304
- Mécanismes de déformation des minéraux et des roches, **6**, 634
- Mesozoic and Tertiary geology of Banks Island, Arctic Canada, **4**, 399
- Metal Pollution in the Aquatic Environment, **5**, 500
- Mineral Deposits of Europe. Volume 1: Northwest Europe, **1**, 90
- Minerals, Lands and Geology for the Common Defence and General Welfare, **4**, 397
- The Mississippian and Pennsylvanian (Carboniferous) Systems in the United States, **6**, 631
- Modeling of Rivers, **5**, 501
- Moraines and Varves; Origin, Genesis, Classification, **5**, 506
- Natural Resource Economics. Issues, Analysis and Policy, **3**, 301
- Optical Crystallography (5th edition), **2**, 206
- Origin of Granite Batholiths: Geochemical evidence, **5**, 506
- Paleoceanography, **6**, 635
- Paleoclimate, Paleomagnetism and Continental Drift, **5**, 510
- Petroleum Geochemistry and Geology, **4**, 397
- Planetary Geology, **4**, 401
- Prospecting in Areas of Glaciated Terrain, **3**, 301
- Proterozoic redbed sequences of Canada, **6**, 637
- The Quaternary of Israel, **6**, 635
- The Realm of Terrestrial Planets, **1**, 89
- Remote Sensing and Image Interpretation, **3**, 305
- Rock-forming minerals, Volume 2A, Single-chain Silicates, **1**, 88
- Rock Mechanics and Engineering. (2nd edition), **1**, 91
- Rocks and Rock Minerals, **3**, 305
- Stratigraphy of Spitsbergen, **3**, 297
- Symposium on Quantitative Stratigraphic Correlation, **4**, 395
- Syn depositional sliding and slumping in the West Clare Namurian Basin, Ireland, **5**, 509
- Thera and the Aegean World, **4**, 396

Tidal Friction and the Earth's Rotation, **2**, 201

Tidal Power and Estuary Management, **2**, 202

Trace Metals in the Environment. Volume 5 – Indium. An appraisal of Environmental Exposure, **5**, 501

Transported cataclasite, ophiolite and granodiorite in Yukon: evidence of arc-continental collision, **4**, 403

Trepassey Map area, Newfoundland, **3**, 307

Tröger's Optical Determination of Rock-Forming Minerals, **2**, 205

Publications Received

Lists appear beginning pages **1**, 95; **2**, 207; **3**, 309; **4**, 404; **5**, 513; **6**, 639

Notices

Notices from the International Commission on Zoological Nomenclature occur on pages, **1**, 100; **5**, 512; **6**, 638

Index

to Authors, key words in titles and to new taxa and new stratigraphical terms in
Volume 117; (R) indicates Review

- Acharyya, S. K. Geochemistry and geotectonic implication of basic volcanic rocks in the Lower Gondwana sequence (Upper Palaeozoic) of the Sikkim Himalayas, 621
- Acid precipitation (R), 510
- Aegean World (R), 396
- Alkaline intrusion, 327
- Allen, J. R. L. Sand-wave immobility and the internal master bedding of sand-wave deposits, 437
- Allison, J. R. & Kearey, P. A geomagnetic investigation of Carboniferous igneous rocks at Tickenham, County of Avon, 587
- America, maps (R), 304
- Ancient environments (R), 92
- Andrews-Speed, C. P. The geology of Central Isla Hoste, southern Chile: sedimentation, magmatism and tectonics in part of a Mesozoic back-arc basin, 339
- Anebolithus tafuri*, sp. nov., 6
- Aquatic environment (R), 500
- Archaeopteryx*, 595
- Arctic Canada (R), 399
- Arthurton, R. S. & Jones, L. C. Revision of the Dinantian stratigraphy of the Craven Basin, N. England, 613
- Ashgill, 485
- Ash layers, 425
- Atlantis (R), 201
- Aureole, 285
- Avon, 587
- Back-arc basin, 339
- Bahat, Dov. Hertzian fracture, a principal mechanism in the emplacement of the British Tertiary intrusive centres, 463
- Bahat, Dov. Secondary faulting, a consequence of a single continuous bifurcation process, 373
- Banks Island (R), 399
- Beaufort Shelf (R), 399
- Bifurcation process, 373
- Birkelund, T. & Callomon, J. H. The Jurassic transgression and the mid-late Jurassic succession in Milne Land, central East Greenland, 211
- Bolbochasmops*, gen. nov., 70
- Bowland Shale Formation, 46
- Box-fault, 579
- Brachiopod faunas (R), 636
- British Antarctic Territory (R), 631
- Buckinghamshire, 59
- Buist, D. S. Columnar sandstone, Island of Bute, Scotland, 381
- Bumastinae, Trilobita, 471
- 'Buschmannia', 199
- Caledonides (R), 637
- Callomon, J. H. & Birkelund T. The Jurassic transgression and the mid-late Jurassic succession in Milne Land, central East Greenland, 211

- Calymenina, Trilobita, 351
 Cambrian, 393; 479; boundary, 23
 Canada (R), 637
 Canadian Arctic Islands (R), 636
 Carboniferous, 587; 607; (R), 631
 Casts, 447
 Cataclasite (R), 403
 Cave, R. & Sanderson, R. W. Silurian volcanism in the central Welsh Borderland, 455
 Chasmopine trilobites, 65
 Chatburn Limestone Formation, 42
 Chatterton, B. D. E. & Ludvigsen, R. The ontogeny of *Failleana* and the origin of the Bumastinae (Trilobita), 471
 Cherns, L. Hardgrounds in the Lower Leintwardine Beds (Silurian) of the Welsh Borderland, 311
 Chile, 339
 Chloritoid-staurolite, 615
 Church Wilne, 243
 Civil Engineers (R), 92
 Classification, volcanic rocks, 51
 Climates (R), 299
 Clitheroe Limestone Formation, 42
 Coastal systems (R), 510
 Collections, palaeontological (R), 93
 Colloid systems (R), 395
 Columnar sandstone, 381
 Contaya Formation, 1
 Continental Drift (R), 510
 Coxon, P., Hall, A. R., Lister, A. & Stuart, A. J. New evidence on the vertebrate fauna, stratigraphy and palaeobotany of the interglacial deposits at Swanton Morley, Norfolk, 525
 Craven Basin, 37; 613
 Crétacé (R), 297
 Cretaceous (R), 510
 Crinoids, 255
 Crystallography (R), 206
 Cyprus, 547
 Debrenne, F. Pseudofossils from the Precambrian, including 'Buschmannia' and 'Praesolenopora', 200
 Dedolomitization, 607
 Derbyshire, 243; 607
 Derbyshire, E. & Jones, P. F. Systematic fissuring of a matrix-dominated lodgement till at Church Wilne, Derbyshire, England, 243
 Devonian, 497; (R), 302; (R), 636
 Dinantian, 37; 613
 Distribution, trilobites, 65
 Donovan, D. T. The Triassic-Jurassic boundary in Great Britain, 617
 Duff, B. A. Palaeomagnetism of late Precambrian or Cambrian diorites from Leicestershire, U.K., 479

- Earth (R), 400
Earth's rotation (R), 201
Eastern Canada (R), 303
East Greenland, 211
Ecological processes (R), 510
Economic mineral deposits (R), 205
Economics (R), 301
Element concentrations (R), 632
Engineering (R), 91
Environment (R), 501
Environments (R), 92; (R), 298
Estuary management (R), 202
Europe, mineral deposits (R), 90
Eutelecrinidae, fam. nov., 260
Evolution, graptolites, 277
Facies models (R), 398
Faileana, 471
Faulting, 373
Faunal dynamics (R), 504
Fewtrell, M. D. & Smith, D. G. Revision of the Dinantian stratigraphy of the Craven Basin, N. England, 37; 613
Fissuring, 243
Floral dynamics (R), 504
Fongen-Hyllingen layered basic intrusion, 363
Foraminiferids (R), 206
Frest, T. J. & Strimple, H. L. New diminutive camarate crinoids from the Ludlow of Oklahoma, 255
Fulgurites, 293
Furnes, H. & Sinha-Roy, S. Geochemistry and geotectonic implication of basic volcanic rocks in the Lower Gondwana sequence (Upper Palaeozoic) of the Sikkim Himalayas, 621
Geochemical processes (R), 298
Geochemistry, 621; (R), 505; (R), 633; alkaline intrusion, 327; colloid systems (R), 395
Geocryology (R), 503
Geological map interpretation (R), 204
Geology (R), 397; civil engineers (R), 92; Guyana, 193; Labrador Shelf (R), 403; Snowdonia & Lleyn (R), 499
Geomagnetic investigation, 587
Geophysics (R), 505
Geotectonic, 621
Glaciated terrain (R), 301
Glaciation, Ordovician, 81
Glaessner, M. F. Pseudofossils from the Precambrian including 'Buschmannia' and 'Praesolenopora', 199
Gondwana, 621
Grain-size curves, 517
Granite batholiths, origin of (R), 506
Granodiorite (R), 403

- Graptolites, evolution, 277
- Greeley, R., Guest, J. E. & Underwood, J. R. Role of lava tubes in flows from the Observatory Vent, 1971 eruption on Mount Etna, 601
- Green, C. P., Hey, R. W. & McGregor, D. F. M. Volcanic pebbles in Pleistocene gravels of the Thames in Buckinghamshire and Hertfordshire, 59
- Griffiths, P. S. Box-fault systems and ramps: atypical associations of structures from the eastern shoulder of the Kenya Rift, 579
- Guest, J. E., Underwood, J. R. & Greeley, R. Role of lava tubes in flows from the Observatory Vent, 1971 eruption on Mount Etna, 601
- Guyana, 193
- Hall, A. R., Coxon, P., Lister, A. & Stuart, A. J. New evidence on the vertebrate fauna, stratigraphy and palaeobotany of the interglacial deposits at Swanton Morley, Norfolk, 525
- Hardgrounds, 311
- Harte, B. Chloritoid-staurolite assemblages in central Perthshire, 615
- Henry, J.-L. Evolution and classification of some Ordovician Calymenina (Trilobita), 351
- Hertfordshire, 59
- Hertzian fracture, 463
- Hey, R. W., Green, C. P. & McGregor, D. F. M. Volcanic pebbles in Pleistocene gravels of the Thames in Buckinghamshire and Hertfordshire, 59
- Himalayas, 621
- Holocene (R), 399
- Huang, T. C. & Sparks, R. S. J. The volcanological significance of deep-sea ash layers associated with ignimbrites, 425
- Hughes, C. P., Rickards, R. B. & Williams, A. The Ordovician fauna from the Contaya Formation of eastern Peru, 1
- Hyden, F. M. Mass flow deposits on a mid-Tertiary carbonate shelf, southern New Zealand, 409
- Ice ages (R), 203
- Igneous, load cast, 363; rocks, 587
- Ignimbrites, 425
- Image interpretation (R), 305; processing (R), 505
- Interglacial deposits, 525
- Intrusive centres, 463
- Ireland (R), 509
- Isla Hoste, 339
- Island of Bute, 381
- Israel (R), 635
- Ivimey-Cook *et al.* The Triassic-Jurassic boundary in Great Britain, 617
- Jackson, D. E. & Munn, D. Dedolomitization of Lower Carboniferous Dolostone in the Wirksworth area, Derbyshire, England, 607
- Johnson, W. & Williams, D. J. A note on the formation of fulgurites, 293
- Jombo Hill, Kenya, 327
- Jones, L. C. & Arthurton, R. S. Revision of the Dinantian stratigraphy of the Craven Basin, N. England, 613
- Jones, P. F. & Derbyshire, E. Systematic fissuring of a matrix-dominated lodgement till at Church Wilne, Derbyshire, England, 243
- Jurassic (R), 510; boundary, 617; East Greenland, 211
- Jurassique (R), 297

- Kearey, P. & Allison, J. R. A geomagnetic investigation of Carboniferous igneous rocks at Tickenham, County of Avon, 587
- Kelly, S. R. A. & McLachlan, A. The use of silicone rubbers in the preparation of casts from natural fossil moulds, 447
- Kent coalfield, 393
- Kenya, 327; Rift, 579
- Kerfornellinae, subfam. nov., 356
- Kirk, N. H. Controlling factors in the evolution of the graptolites, 277
- Klimaschwankungen (R), 507
- K loss, 267
- Labrador Shelf (R), 403
- Lands (R), 397
- Lane, P. D. & Thomas, A. T. A replacement name for *Rhax* Lane & Thomas, 1978 (Trilobita) *non* Hermann, 1804, 191
- Lava tubes, 601
- Le Bas, M. J. & Sabine, P. A. Progress in 1979 on the Nomenclature of Pyroclastic Materials, 389
- Leicestershire, 479
- Leintwardine Beds, 311
- Lindström, M. & Vortisch, W. Surface structures formed by wind activity on a sandy beach, 491
- Lister, A., Coxon, P., Hail, A. R. & Stuart, A. J. New evidence on the vertebrate fauna, stratigraphy and palaeobotany of the interglacial deposits at Swanton Morley, Norfolk, 525
- Llyn (R), 499
- Lord, A. R. Weichselian (late Quaternary) ostracods from the Sandnes Clay, Norway, 227
- Ludlow, Oklahoma, 255
- Ludvigsen, R. & Chatterton, B. D. E. The ontogeny of *Failleana* and the origin of the Bumastinae (Trilobita), 471
- Macroevolution (R), 508
- Manganese nodules (R), 306
- Map interpretation (R), 204
- Marine systems (R), 510
- Mass flow deposits, 409
- McConnell, R. B. The geology of southern Guyana, 193
- McDougall Pass (R), 510
- McGregor, D. F. M., Green, C. P. & Hey, R. W. Volcanic pebbles in Pleistocene gravels of the Thames in Buckinghamshire and Hertfordshire, 59
- McLachlan, A. & Kelly, S. R. A. The use of silicone rubbers in the preparation of casts from natural fossil moulds, 447
- McNamara, K. J. Taxonomy and distribution of chasmopine trilobites, 65
- Mesozoic, 339; 547; (R), 399
- Metaeutelecrinus*, gen. nov., 262
- Metallic ores (R), 505
- Metal pollution (R), 500
- Metamorphic grade, 187
- Meyerhoff, A. A. Petroleum basins of the Soviet Arctic, 101
- Middlemost, E. A. K. A contribution to the nomenclature and classification of volcanic rocks, 51

- Milne Land, 211
- Miller, R. G. & Tanner, P. W. G. Geochemical evidence for loss of Na and K from Moinian calc-silicate pods during prograde metamorphism, 267
- Mineral deposits, (R), 90; (R), 502; economic (R), 205; exploration (R), 633
- Minerals, (R), 88; (R), 397; optical determination (R), 205
- Minéraux (R), 634
- Miocene, 565
- Mississippian (R), 631
- Modeling of rivers (R), 501
- Moinian, 267
- Moraines (R), 506
- Mount Etna, 601
- Munn, D. & Jackson, D. E. Dedolomitization of Lower Carboniferous dolostone in the Wirksworth area, Derbyshire, England, 607
- Myrmekite, 29
- Na loss, 267
- Namurian (R), 509
- Nanicrinus papillatus* gen. et sp. nov., 258–9
- Natural environment, dictionary (R), 632; resource (R), 301
- Neef, G. & Plimer, I. R. Early Miocene extrusives and shallow intrusives from Small Nggela, Solomon Islands, 565
- Newania carbonatite, aureole, 285
- Newfoundland (R), 307
- New Zealand, 409
- Nomenclature, volcanic rocks, 51
- Northern Graham Land (R), 631
- Norway, 363; Quaternary, 227
- Nyambok, I. O. Petrology and geochemistry of the alkaline intrusion, Jombo Hill, Kenya, 327
- Observatory vent, 601
- Oklahoma, ludlow, 255
- Ontogeny, 471
- Ophiolite (R), 403
- Ordovician, 1; evolution, 351; glaciation, 81
- Ostracods, Quaternary, 227
- Palaeomagnetism, 479
- Palaeontological collections (R), 93
- Palaeozoic, 621
- Paleoceanography (R), 635
- Paleoclimate (R), 510
- Paleomagnetism (R), 499; (R), 510
- Parautelecrinus*, gen. nov., 262
- Pelvis, 595
- Pendleside Limestone Formation, 45
- Pennsylvanian (R), 631
- Periglacial processes (R), 503
- Perthshire, 615
- Peru, 1
- Petroleum, basins, 101; geochemistry (R), 397; geology (R), 397

- Petrology, (R), 87; alkaline intrusion, 327
Phillips, E. R. On polygenetic myrmekite, 29
Planetary geology (R), 401
Planets, terrestrial (R), 89
Pleistocene, 59
Plimer, I. R. & Neef, G. Early Miocene extrusives and shallow intrusives from Small Nggela, Solomon Islands, 565
Poole, E. G. The Triassic-Jurassic boundary in Great Britain, 617
Porterfieldia contayaensis, sp. nov., 8
Praedicticrinus depressus, gen. et sp. nov., 260
'Praesolenopora', 199
Precambrian, 479; boundary, 23; geology (R), 401; pseudofossils, 199
Pre-Carboniferous, 393
Price, D. A revised age and correlation for the topmost Sholeshook Limestone Formation (Ashgill) of South Wales, 485
Price, G. D. Microstructures in titanomagnetite: discussion of a paper by G. D. Price, 385
Prograde metamorphism, 267
Prospecting (R), 301
Proterozoic (R), 637
Pseudofossils, Precambrian, 199
Pyroclastic materials, 389
Quaternary (R), 635; Norway, 227
Rajasthan, 285
Redbed (R), 637
Remote sensing (R), 305
Rhax, 191
Richardson Mountains (R), 510
Rickards, R. B., Hughes, C. P. & Williams, A. The Ordovician fauna from the Contaya Formation of eastern Peru, 1
Rivers, modeling (R), 501
Robertson, A. H. F. & Swarbrick, R. E. Revised stratigraphy of the Mesozoic rocks of southern Cyprus, 547
Roches (R), 634
Rock, mechanics (R), 91; (R), 401; minerals (R), 305
Rocks (R), 305
Rollmops, gen. nov., 70
Rozanov, A. Yu & Sokolov, B. S. The problem of the Precambrian-Cambrian boundary, 23
Sabine, P. A. & Le Bas, M. J. Progress in 1979 on the nomenclature of pyroclastic materials, 389
Sanderson, R. W. & Cave, R. Silurian volcanism in the central Welsh Borderland, 455
Sandnes Clay, 227
Sandstone, 381
Sand-wave deposits, 437
Scopelochasmops, gen. nov., 71
Seavalleys (R), 304
Shawa, M. S., Walton, E. K. & Stephens, W. E. Reading segmented grain-size curves, 517
Sholeshook Limestone Formation, 485
Sikkim, 621

- Silicates (R), 88
Silicone rubbers, 447
Silurian, 311; volcanism, 455
Sinha-Roy, S. & Furnes, H. Geochemistry and geotectonic implication of basic volcanic rocks in the Lower Gondwana sequence (Upper Palaeozoic) of the Sikkim Himalayas, 621
Smith, D. G. & Fewtrell, M. D. Revision of the Dinantian stratigraphy of the Craven Basin, N. England, 37; 613
Smith, P. P. K. Microstructures in titanomagnetite: discussion of a paper by G. D. Price, 385
Snowdonia (R), 499
Soil properties (R), 500
Soils (R), 506
Sokolov, B. S. & Rozanov, A. Yu. The problem of the Precambrian-Cambrian boundary, 23
Solomon Islands, 565
South Shetland Islands (R), 631
South Wales, 485
Soviet Arctic, petroleum basins, 101
Sparks, R. S. J. & Huang, T. C. The volcanological significance of deep-sea ash layers associated with ignimbrites, 425
Spectral interferences (R), 633
Spectroscopy (R), 633
Spitsbergen (R), 297
Stephens, W. E., Walton, E. K. & Shawa, M. S. Reading segmented grain-size curves, 517
Strathspey, 187
Stratigraphic correlation (R), 395
Stratigraphy (R), 297
Strimple, H. L. & Frest, T. J. New diminutive camarate crinoids from the Ludlow of Oklahoma, 255
Structural geology (R), 306
Stuart, A. J., Coxon, P., Hall, A. R. & Lister, A. New evidence on the vertebrate fauna, stratigraphy and palaeobotany of the interglacial deposits at Swanton Morley, Norfolk, 525
Stubblefield, J. The supposed Cambrian at Fobbing, Essex, and the nature of some pre-Carboniferous in the northwestern part of the Kent Coalfield, 393
Submarine canyons (R), 304
Subtropical (R), 506
Swansea Valley Fault, 497
Swanton Morley, 525
Swarbrick, R. E. & Robertson, A. H. F. Revised stratigraphy of the Mesozoic rocks of southern Cyprus, 547
Syndepositional sliding (R), 509
Tanner, P. W. G. & Miller, R. G. Geochemical evidence for loss of Na and K from Moinian calc-silicate pods during prograde metamorphism, 267
Taxonomy, trilobites, 65
Terrestrial, ecosystems (R), 510; planets (R), 89
Tertiary, 409; 463; (R), 399
Thames gravels, 59

- Thera (R), 396
Thermodynamics (R), 87
Thomas, A. T. & Lane, P. D. A replacement name for *Rhax* Lane & Thomas, 1978 (Trilobita) *non* Hermann, 1804, 191
Thy, P. & Wilson, J. R. Primary igneous load-cast deformation structures in the Fongen-Hyllingen layered basic intrusion, Trondheim region, Norway, 363
Tickenham, 587
Tidal, friction (R), 201; power (R), 202
Till, 243
Tissintia simplex, sp. nov., 4
Titanomagnetite, 385
Trace metals (R), 501
Trepassey (R), 307
Triassic boundary, 617
Trilobita, 191; bumastinae, 471; calymenina, 351
Trilobites, chasmopine, 65
Trondheim Region, 363
Tropical (R), 506
Tunbridge, I. P. Possible Devonian uplift on the Swansea Valley Fault, Wales, 497
Underwood, J. R., Guest, J. E. & Greeley, R. Role of lava tubes in flows from the Observatory Vent, 1971 eruption on Mount Etna, 601
United States (R), 631
U.S.A. (R), 637
Varves (R), 506
Vertebrate fauna, 525
Viladkar, S. G. The fenitized aureole of the Newania carbonatite, Rajasthan, 285
Volcanic pebbles, 59; rocks, 51; 621
Volcanism, 455
Vortisch, W. & Lindström, M. Surface structures formed by wind activity on a sandy beach, 491
Walker, A. D. The pelvis of *Archaeopteryx*, 595
Walton, E. K., Stephens, W. E. & Shawa, M. S. Reading segmented grain-size curves, 517
Weichselian, 227
Welsh Borderland, 311; 455
Wenlock (R), 504
Western Ireland, 81
Williams, A., Hughes, C. P. & Rickards, R. B. The Ordovician fauna from the Contaya Formation of eastern Peru, 1
Williams, D. J. & Johnson, W. A note on the formation of fulgurites, 293
Williams, D. M. Evidence for glaciation in the Ordovician rocks of western Ireland, 81
Wilson, J. R. & Thy, P. Primary igneous load-cast deformation structures in the Fongen-Hyllingen layered basic intrusion, Trondheim Region, Norway, 363
Winchester, J. A. Variation of metamorphic grade in Lower Strathspey, 187
Wind, 491
Wirksworth, 607
Worston Shale Formation, 44
Yukon (R), 403; (R), 510

NOTES FOR CONTRIBUTORS

Contributions for publication should be addressed to The Editors, *Geological Magazine*, Department of Earth Sciences, Downing Street, Cambridge CB2 3EQ, England.

All contributions, whether articles, correspondence or reviews, must be typed in duplicate on one side of the paper, double spaced throughout, with a wide margin on the left of each page and a narrower margin on the right. Any minor corrections should be made neatly in the typescript, leaving the margins clear.

The total length of a paper should not in general exceed 20 pages of the *Geological Magazine*; preference and priority are given to short papers. Longer papers (between 20 and 40 pages of *Geological Magazine*) will from time to time be considered, but authors wishing to submit such manuscripts should first request further details.

The accuracy of references is the responsibility of authors. References must be double spaced and abbreviated in the form of the *World List of Scientific Periodicals* 4th Edition as far as possible, e.g.

Brooks, M. & James, D. G. 1975. The geological results of seismic refraction surveys in the Bristol Channel, 1970–73. *Q. Jl geol. Soc. Lond.* **131**, 163–82.

Kirby, G. A. 1978. Layered gabbros in the Eastern Lizard, Cornwall, and their significance. *Geol. Mag.* **115**, 199–204.

Books should be cited as:

Ramsey, J. G. 1967. *Folding and Fracturing of Rocks*. New York: McGraw-Hill.

Bott, M. H. P. 1973 The evolution of the Atlantic north of the Faroe Islands. In *Implications of Continental Drift to the Earth Sciences*, vol. 1 (ed. D. H. Tarling and S. N. Runcorn), pp. 175–89. London, New York: Academic Press.

Unpublished work, e.g. from theses, should normally be referred to in the text in parentheses and not included in the reference list unless in the press.

Articles must be accompanied by a brief summary. Contributions should follow the general style of papers in recent issues of the Magazine and the principles laid down in *Notes to Authors* (*Proc. Geol. Soc. Lond.*, No. 1627, Oct. 1965). Headings should be set out clearly, but not underlined. Primary headings should be in lower case, at margin, with arabic numeral; sub-headings should be numbered 2.a, 2.b, etc., and tertiary headings 2.a.1., 2.a.2. No cross-references should be given by page number, but 'above' and 'below' should be used with the section specified, e.g. Section 2.a.1.

Illustrations must be drawn to allow reduction to maximum size of 200 mm × 134 mm; originals should normally be drawn at twice final size and must be sent in a flat package. Lettering must allow for legibility after reduction (i.e. equivalent to 1 mm as a minimum on reduction). Duplicates of illustrations may be prints or, preferably, reductions. Metric units of the SI system are preferred. Illustrations in the text will be referred to as figures (Fig. 2, 2a, etc.), and halftone plates will be referred to (also in arabic) as Plates 2, 2a, etc. Folding plates will not be accepted. Captions for figures and plates must be typed on separate sheets.

Twenty-five offprints of each paper will be provided free of charge. Additional offprints may be purchased according to a set scale of charges.

Geological Magazine

Volume 117, Number 6, November 1980

WALTON, E. K., STEPHENS, W. E. & SHAWA, M. S. Reading segmented grain-size curves	517-524
COXON, P., HALL, A. R., LISTER, A. & STUART, A. J. New evidence on the vertebrate fauna, stratigraphy and palaeobotany of the interglacial deposits at Swanton Morley, Norfolk	525-546
SWARBRICK, R. E. & ROBERTSON, A. H. F. Revised stratigraphy of the Mesozoic rocks of southern Cyprus	547-563
PLIMER, I. R. & NEEF, G. Early Miocene extrusives and shallow intrusives from Small Nggela, Solomon Islands	565-578
GRIFFITHS, P. S. Box-fault systems and ramps: atypical associations of structures from the eastern shoulder of the Kenya Rift	579-586
KEAREY, P. & ALLISON, J. R. A geomagnetic investigation of Carboniferous igneous rocks at Tickenham, County of Avon	587-593
WALKER, A. D. The pelvis of Archaeopteryx	595-600
GUEST, J. E., UNDERWOOD, J. R. & GREELEY, R. Role of lava tubes in flows from the Observatory Vent, 1971 Eruption on Mount Etna	601-606
MUNN, D. & JACKSON, D. E. Dedolomitization of Lower Carboniferous Dolostone in the Wirksworth area, Derbyshire, England	607-612
CORRESPONDENCE	
Revision of the Dinantian stratigraphy of the Craven Basin, N England: R. S. ARTHURTON & L. C. JONES and M. D. FEWTRELL & D. G. SMITH	613-615
Chloritoid-staurolite assemblages in central Perthshire: B. HARTE	615-616
The Triassic-Jurassic boundary in Great Britain: H. C. IVIMEY-COOK <i>et al.</i> ; D. T. DONOVAN and E. G. POOLE	617-620
Geochemistry and geotectonic implication of basic volcanic rocks in the Lower Gondwana sequence (Upper Palaeozoic) of the Sikkim Himalayas: S. K. ACHARYYA and S. SINHA-ROY & H. FURNES	621-629
REVIEWS	631-637
NOTICES	638
PUBLICATIONS RECEIVED	639-644

© Cambridge University Press 1980

Printed in Great Britain at the University Press, Cambridge