

PROCEEDINGS OF THE
DORSET NATURAL HISTORY
& ARCHÆOLOGICAL SOCIETY

FOR 1958

VOLUME 80

Published in April, 1959

Edited by
J. STEVENS COX, F.S.A.



DORCHESTER
PRINTED BY LONGMANS (DORCHESTER) LTD., AT THE FRIARY PRESS

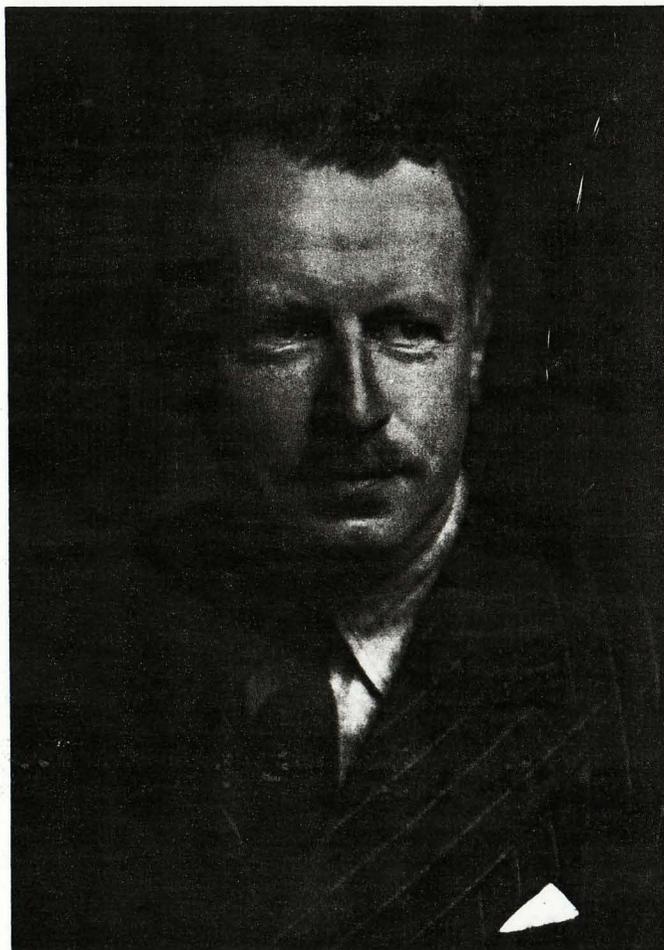
1050

WILLIAM JOSCELYN ARKELL

1904-1958



[Reprinted without change of pagination from



W J Arkell

WILLIAM JOSCELYN ARKELL

1904-1958

W. J. ARKELL, the youngest of a family of seven, was born at Highworth, Wilts., on 9 June 1904. His father, James Arkell, was junior partner with his brother Thomas in Arkell's Brewery, Kingsdown, near Swindon, a prosperous business founded by their father, John Arkell. Thomas Arkell died in 1919 at the age of 84, and James (the youngest of a family of 13) then became head of the firm until his death in 1926 at the age of 74. The family is believed to have immigrated at the time of William of Orange, and to have taken its name, from Arkel, in Holland; and until John Arkell started the brewery business its members had been mostly farmers. W. J. Arkell's mother, Laura Jane Arkell, was one of four children of a London solicitor, Augustus William Rixon, all of whom attained the age of 85 or more. She was an artist of considerable ability, as was also her brother, W. A. Rixon, of Northleach.

A deeply rooted love for the English countryside influenced Arkell from an early age. Alone or with a brother he explored every land, spinney, hedge and ditch around Highworth, collecting insects, snails, plants and fossils. The Diptera were his special interest. The family summer holidays, always spent at Swanage, afforded opportunities for the Dorset coast and interior to be explored with equal thoroughness, on foot or by bicycle. He was sent in 1914 to Durlston Court preparatory school, Swanage, and later entered Wellington College, Berks. He does not appear to have displayed exceptional ability in any branch of ordinary school studies; having, moreover, outgrown his strength (he was 6 ft. 2 in. tall at the age of 13 and 6 ft. 4½ in. at 17½), he had little aptitude for games. Admission to the school Field Club (a somewhat exclusive body limited to 14 members) was, however, his consolation and salvation, for it carried with it the privilege of devoting games periods during the summer term to field work in natural history. His collection of Diptera grew rapidly, and, always very methodical, he entered his observations in copious diaries. In two successive years (1920 and 1921) he was awarded the school Pender Prize for the best essay in natural history. The first essay was a treatise on the Robber Flies (Asilidae) and the second on the natural history of the Dorset heaths; both were illustrated in colour. In his last summer at school (1921) he gained prizes for the best natural history diary of the year and the best display at the annual exhibition of the school Natural History Society. Few of his friends in later life were aware that while at school and during his earlier years at Oxford Arkell wrote a number of poems, some of which were published in *The Tower* (the Wellington

College magazine) and elsewhere. Several, composed at about the age of 17, are assembled in a small privately published booklet, *Seven Poems*, distributed to his friends posthumously on the 54th anniversary of his birth. These charming poems could only have been the work of one with a profound love of Nature and the countryside.

Arkell left school in December 1921, passed Responsions (but not until the second attempt owing to weakness in Latin) in the spring, and entered New College, Oxford, as a commoner in October 1922. By this time he had decided to make geology and palaeontology his career, and to relegate entomology to second place among his interests. This decision was reinforced by the inspiration and encouragement of that versatile enthusiast, W. J. Sollas, then Professor of Geology, although Arkell has left it on record that 'my biology tutor was Julian Huxley, who made zoology so interesting that he nearly weaned me from geology to it, but not quite'. In June 1925, he gained the only first-class honours of his year in geology, and in the following autumn sat for and was awarded the Burdett-Coutts Scholarship, which opened the way for research in his chosen field. The geology and palaeontology of the Corallian beds (to which the rocks around Highworth belonged that he had known since his boyhood) were the subject of his earliest post-graduate work. His first important paper, entitled 'The Corallian rocks of Oxford, Berks. and North Wilts.', was communicated by Sollas to the Royal Society in 1927, and publication of his 'Monograph of British Corallian Lamellibranchia', based on the thesis which gained him his D.Phil., was begun by the Palaeontographical Society in 1929.

At this same period an ideal opportunity arose of broadening his experience. For four winter seasons (1926-30) he joined K. S. Sandford in a survey of the traces of Palaeolithic man along some 1200 kilometres of the Nile Valley and much of the neighbouring country, organized by the Oriental Institute of the University of Chicago under the direction of Professor J. H. Breasted. Four notable monographs published by the Oriental Institute under the joint authorship of Sandford and Arkell were the main outcome of this work. Arkell always retained an interest both in prehistory and in the geology of Egypt, a country which he re-visited much later in life.

His Jurassic field-work was meanwhile being extended gradually to other parts of the system and to other regions. Summers were still spent on the Dorset coast and visits were paid to France and Germany, where museum specimens were examined and observations made in the field. In a paper published in 1930 he compared the Jurassic rocks of the Calvados coast of France with those of southern England. Collaboration with J. A. Douglas in a survey of the Cornbrash along its entire English outcrop led to two joint papers published by the Geological Society in 1928 and 1932, and study of the Great Oolite of Oxfordshire to a paper published in 1931 by the same Society. For some years Arkell had now been ambitiously assembling material for a major work, his *Jurassic System in Great Britain*, published in 1933. This was an amazing achievement for a man still in his twenties. An imposing

volume of 681 pages and copious illustrations, it presented a coherent, critical, and up-to-date survey of the subject, bringing together information scattered in hundreds of memoirs and papers, many in relatively inaccessible publications of provincial societies. He was on classical ground, for the rocks of which he wrote were those that had long previously been studied and grouped in formations by William Smith, the first to observe that such formations succeeded one another everywhere in the same order and that each could be identified by its characteristic fossils. In a well-written chapter (now widely used as a text for teaching) Arkell reviewed the history of the theory of classification and correlation of fossiliferous rocks from the time of Smith onwards, discussing in turn the stages of d'Orbigny, the zones of Oppel, and the hemerae of Buckman, and he pointed out the need for caution in accepting at least some of Buckman's published conclusions. In a further introductory section he demonstrated the relation between the distribution and facies of the rocks and troughs of sedimentation and axes of folding, while general palaeogeographical conclusions formed the subject of a final chapter. This work was very favourably reviewed by F. A. Bather, F. L. Kitchin, and others in this country, and by a number of writers abroad; it immediately gained for Arkell an international reputation as a foremost authority on Jurassic stratigraphy and palaeontology, and to the present day remains an indispensable work of reference.

His Burdett-Coutts Scholarship expired in 1927, and in 1929 Arkell was appointed a Lecturer at New College, Oxford; while in 1933 he was elected a Senior Research Fellow of the College, continuing as such until 1940. He was awarded the D.Sc. degree of the University of Oxford in 1934. He married, in 1929, Ruby Lilian Percival, only child of S. R. S. Percival, of Boscombe, Hants., and established a charming home at Cumnor, near Oxford, where many friends were hospitably received, as they were also at the bungalow at Ringstead Bay, Dorset, where he spent most vacations. Three sons, Raymond, Julian and Mervyn, were born in 1932, 1934 and 1937 respectively. In 1933 he visited the United States of America to attend the International Geological Congress, held at Washington, where he read a paper entitled 'Analysis of the Mesozoic and Cainozoic folding in England'. He took part in a Congress excursion of 1100 miles in New England and made many American friends.

With teaching duties that were never more than nominal and with no curatorial or other time-absorbing occupations, Arkell was fortunate in being able to devote almost all his time to research. Not a moment of that time was wasted. Having completed his monograph on Corallian lamellibranchs, he decided to turn to the study of ammonites as being more applicable to general problems of Jurassic correlation. The difficult literature of this group was mastered with his customary ability and thoroughness, and by 1935 the first annual instalment of a monograph of the ammonites of the English Corallian beds was ready for publication by the Palaeontographical Society. Ammonites from the Kimmeridge and Oxford Clays formed the

subjects of shorter papers. He still continued with detailed geological mapping in various areas. Among several papers of this period in which the results of his field work were recorded may be mentioned those on the Portland beds of the Dorset mainland (1935) and on the Corallian beds of Dorset (1936), and those explaining and including his maps of the Corallian beds between Marcham and Faringdon, Berks. (1939) and around Highworth (1941). The 'Coral Rag' of Berkshire and adjacent counties interested him particularly, since, during his visits to Egypt, he had been able to study the modern fringing reefs of the Red Sea littoral and their ecology. Its origin was discussed by him in a paper published in 1935, and the conclusion was reached that this formation, which occurs in irregular patches, represents a series of fringing reefs formed in a shallow sea and, still in their position of growth. Between the patches of Coral Rag are strips of detrital limestone representing the current-bedded debris which filled the channels between the reefs. Arkell accepted the opinion of most previous writers that a tropical or subtropical climate existed in the north-west European area (and probably over the whole world) in Corallian times.

Tectonic phenomena also continued to interest him. A detailed study of the disturbances affecting the rocks of eastern Dorset led him to the conclusion that some existing ideas regarding the structure of the area were untenable. The Purbeck fault, in particular, considered since the time of Strahan to be a thrust-fault resulting from an overthrust from north to south, was shown to be a normal fault with a downthrow to the north, due most probably to adjustment of the beds following their folding. The disturbed condition of the beds in the Isle of Purbeck from the Purbeck series to the Lower Chalk was attributed to the adjustment of these incompetent strata between two folded competent formations, the Portland Stone and the White Chalk. These ideas were developed in papers published from 1936 to 1938. By 1939 an important memoir on the geology of the Weymouth district and the Isle of Purbeck had been completed with some co-operation by other workers, accepted for publication by the Geological Survey, and even set up in type. Its publication was interrupted by the outbreak of war, and it did not eventually appear until 1947. Reference may also be made here to a paper on the gastropods of the Purbeck beds published by Arkell in 1941. His illustrations of these small shells, like many of the figures in his other works, including the Weymouth memoir, testify to his ability as an artist. Painting and drawing were, in fact, favourite hobbies, and his watercolours of favourite scenes in Dorset and elsewhere are most pleasing.

In 1941 the war led Arkell to become a temporary civil servant. He took up an appointment as a Principal in the Economic and Inter-Allied Branch of the Ministry of Shipping (later Ministry of Transport), and went to live in London at a time when enemy bombing was intense and conditions of life very rigorous. Whether or not it was attributable to the strain of an existence so different from that to which he was accustomed it is impossible to say, but late in 1943 he suffered a breakdown in health and was admitted in a serious

condition to a sanatorium, where his life was just saved by a pneumothorax operation and five months were spent in all. He was unable to resume his Civil Service duties, and until 1945 was not well enough even to attempt geological field-work. For several years his indoor working hours had to be severely restricted, and he was never subsequently a really fit man.

Arkell's election to the Royal Society took place in 1947. In the same year he was offered a University Lectureship in the Department of Geology at Cambridge, but had to decline owing to his poor state of health. He then received and accepted with enthusiasm the offer of a Senior Research Fellowship at Trinity College, Cambridge. A study was allotted to him on the ground floor of the Sedgwick Museum, where he was welcomed cordially by his new colleagues and continued with his palaeontological work. After living in rooms in College for a year he moved his home to Cranmer Road, Cambridge, in 1948. His departure from Oxford almost coincided, as it happened, with the appearance of his two works, *Geology of Oxford* and *Oxford Stone*. A considerable variety of building stones, mostly Jurassic limestones from the surrounding country, had been used in Oxford over the centuries. Ten years previously (1937) Arkell and L. H. Dudley Buxton had been consulted on the best sources of material for the renovation of a number of colleges and had submitted a private report on the matter. The second of the works just mentioned was an outcome of the interest so awakened, and is an informed and well illustrated account of the history of the use of various stones for Oxford buildings, with notes on their weathering properties. The preparation of this work involved much research among original documents in college records. Arkell was also greatly interested in place-names and their relation to local geology and topography, and several papers from his pen dealt with names in Wiltshire, Oxfordshire and Dorset. The dialect terms of quarrymen also attracted his attention, and, following a paper (1944) on the local names for the stone beds in Purbeck and Portland, he set about systematically recording all terms of this nature that came to his notice, with a view to their eventual publication in a glossary. Later, it was found that Dr S. I. Tomkeieff, of King's College, Newcastle on Tyne, had been making a similar compilation in the north of England. Their forces were, therefore, combined, and an interesting work, *English rock terms, chiefly as used by miners and quarrymen*, appeared in 1953 under their joint authorship.

Publication of Arkell's monograph on the ammonites of the English Corallian beds by the Palaeontographical Society was completed in 1948, and the first instalment of a corresponding work on Bathonian ammonites appeared in 1951. Now established as the foremost living authority on Middle and Upper Jurassic ammonites, Arkell, in his Cambridge days, was increasingly inundated with specimens from all over the world for examination and report, the oil companies contributing their full share to this mass of material. In December 1950, and January 1951, he attended a congress in Egypt at the invitation of the Egyptian Government, and took the opportunity to examine the Middle Jurassic rocks of the Gulf of Suez, and then to

visit the Wadi Araba to search (unsuccessfully) for an exposure of Lower Liassic rocks that Figari Bey, in 1864, claimed to have found there. From Egypt he proceeded to Saudi Arabia and visited the extensive outcrops of Jurassic formations at Jebel Tuwaiq, first discovered by Philby. These rocks had yielded to geologists of the Arabian American Oil Company (under whose guidance Arkell visited the area) a series of ammonites which he described in 1952 in the *Philosophical Transactions*. In January 1952, a further opportunity for travel arose. Accepting an invitation from the University of Algiers, he visited Algeria and Tunisia and examined exposures of Jurassic rocks under the guidance of Professor H. Laffitte and Monsieur Gabriel Lucas. His last oversea journey was in September 1953, when, as guest of the German Geological Society, he visited the classic Jurassic exposures of Suabia.

The researches of these post-war years culminated in the publication of a further major work, the *Jurassic Geology of the World*, which appeared in 1956. Of about the same length and of the same format as *The Jurassic System in Great Britain*, this consists primarily of an able and critical digest of a very extensive literature, much of it bewildering to the average worker because of the number and varying usages of stratigraphical terms, but it also contains much previously unpublished information. The emphasis throughout is on ammonite palaeontology. From the time when S. S. Buckman promulgated his schemes of 'polyhederal' chronology much controversy had centred upon the questions of the universality of ammonite zones and the degree of precision with which Jurassic time could be subdivided on the basis of the ranges of ammonites. In the short introduction to *The Jurassic Geology of the World* we find its author's mature judgement on these matters. 'Minute subdivisions,' we read, 'such as those made by Buckman in the English Lias, are not recognizable even in other European countries', and 'for correlations from one part of Europe to another the smallest units of practical value are astonishingly near the first set of zones promulgated by Opper'; further, 'for the Upper Jurassic even Opper's zones are often too small to be recognized outside Europe'. Similarly, most of the chronological-stratigraphical terms introduced for parts of the Jurassic succession by one author or another are considered unnecessary; in fact, for classification on a world scale, the original scheme of stages introduced by d'Orbigny in 1850 is considered preferable to any later one. Thus in this work the Jurassic System is divided only into d'Orbigny's original 11 stages and no more than 58 ammonite zones are recognized in the Jurassic of north-western Europe. The appearance of this work was followed in 1957 by that of one more or less complementary to it, the volume on Ammonoidea of the *Treatise on Invertebrate Paleontology*, edited by R. C. Moore. Arkell's contributions here consist mainly of the general introduction on Mesozoic Ammonoidea, of the systematic descriptions of most taxa of Jurassic age (although such descriptions are integrated with those of B. Kummel and C. W. Wright, who are primarily concerned with Triassic and Cretaceous taxa respectively), and of the

section on aptychi. It is probable that the classification and nomenclature of this exhaustive work will long be accepted as the standard ones.

In the early autumn of 1956 Arkell had a severe stroke which left him partially paralyzed. He bore this sad affliction with the greatest courage and by sheer will-power contrived after a time to resume some of his work and correspondence. The present writer, to his great regret, did not have the opportunity of visiting him at his home in Cambridge during this closing phase of his life, but those who did see him have commented on his cheerfulness and mental alertness, and on his unabated interest in events in the world of geology. He died within a few hours of a second stroke on 18 April 1958. His geological library, almost as complete as that of the British Museum (Natural History) in world Jurassic literature, has been bequeathed to the University of Oxford, in the anticipation that the Department of Geology there will become a centre for work on Jurassic palaeontology. His earlier fossil collections are at Oxford, the later ones mainly in the Sedgwick Museum, Cambridge. His wife and three sons survive him.

The National Academy of Sciences of America awarded Arkell the Mary Clark Thompson Gold Medal in 1944, the Geological Society of London the Lyell Medal in 1949, and the German Geological Society the von Buch Medal in 1953. He was an honorary member or correspondent of the Linnean Society of Normandy, of the Geological Societies of France, Germany and Egypt, of the Paleontological Society of America, and of the Dorset Natural History and Archaeological Society. He served on the Councils of the Geological and Palaeontographical Societies, and on several Royal Society committees.

Arkell was tall, fair-haired and fresh-complexioned. His robust appearance in the prime of life suggested that he could well have been an outstanding oarsman or athlete in his student days, but it was deceptive, for much of his life was a struggle against an inherently weak constitution. His manner was somewhat reserved and he disliked social functions, to which he found the solitude of the open country or the sea cliffs infinitely preferable. He was always, however, most approachable and friendly, and gave unstinted help and encouragement to younger workers and to amateurs. That he could be lighthearted as well as serious is shown by the 'field meeting report' entitled 'The London excursion, 1725', which appeared anonymously (but in fact from his pen) in the *Proceedings of the Geologists' Association* for 1946, and illustrates, incidentally, his interest in the history of geology. His pen was fluent and his prose style clear and unimbellished. He had firm convictions and was not slow to express his opinions on many subjects in unequivocal language; but it was never his intention to give offence, for he bore no ill-will towards those who disagreed with him. He preferred facts to theories; philosophical speculations entered very little into his writings and had no influence on his conclusions.

BIBLIOGRAPHY*

- ✓ 1926. Studies in the Corallian lamellibranch fauna of Oxford, Berks. and Wilts., I. Limidae; II. Pectinidae. *Geol. Mag.*, Lond. **63**, 193-210, 534-555, pls. 19-22, 31-34.
- ✓ 1926. The Corallian period. *The natural history of the Oxford district* (ed. J. J. Walker) (Oxford: University Press), 63-71.
- + 1927. The Corallian rocks of Oxford, Berks. and North Wilts. *Phil. Trans. B*, **216**, 67-181, pls. 1-2, map.
1928. The Red Down boring, Highworth, and its geological significance, with notes on neighbouring wells. *Wilts. archaeol. nat. Hist. Mag.* **44**, 43-48.
1928. Aspects of the ecology of certain fossil coral reefs. *J. Ecol.* **16**, 134-149, pls. 19-21.
1928. (With J. A. DOUGLAS.) The stratigraphical distribution of the Cornbrash. I. The south-western area. *Quart. J. Geol. Soc. Lond.* **84**, 117-178, pls. 9-12.
1928. (With K. S. SANDFORD.) First report of the Prehistoric Survey expedition. *Orient. Inst. Commun., Chicago*, **3**. Pp. ix, 52, 1 map.
1928. (With K. S. SANDFORD.) Terraces of the Nile in Upper Egypt. *1st Report of the Commission on Pliocene and Pleistocene Terraces, Union géogr. internationale, Florence*, **2**, 17.
1929. The Corallian lamellibranch fauna of Britain. *Abstr. Diss. Univ. Oxford*, 155-160.
1929. (With K. S. SANDFORD.) The origin of the Faiyum depression: the Faiyum and Uganda. *Geogr. J.* **74**, 578-583.
1929. (With K. S. SANDFORD.) On the relation of Palaeolithic Man to the history and geology of the Nile Valley in Egypt. *Man*, **29**, 50.
1929. Jurassic. *Encyclopaedia Britannica*, ed. 14, **13**, 193-196.
1929. (With K. S. SANDFORD.) Palaeolithic Man and the Nile-Faiyum divide. *Orient. Inst. Publ. Chicago*, **10**. Pp. xv, 77, 11 pls., 1 folding map.
- + ✓ 1929-37. A monograph of British Corallian Lamellibranchia. *Pal. Soc. Lond.* Pp. xxxviii, 392, 55 pls.
- + ✓ 1930. The generic position and phylogeny of some Jurassic Arcidae. *Geol. Mag.*, Lond. **67**, 297-310, 337-352, pls. 14-16.
1930. A comparison between the Jurassic rocks of the Calvados coast and those of southern England. *Proc. Geol. Ass., Lond.* **41**, 396-411, pl. 29.
1931. The age of the *Natica* band in the Corallian at Cumnor, near Oxford; and descriptions of two new sections at Cothill. *Proc. Geol. Ass., Lond.* **42**, 44-49.
1931. Report of field meeting to study the Corallian rocks S.W. of Oxford. *Proc. Geol. Ass., Lond.* **42**, 50-52, pl. 4.
1931. Essay review: R. Brinkmann, Statistisch-biostratigraphische Untersuchungen an mitteljurassischen Ammoniten, über Artbegriff und Stammesentwicklung. *Geol. Mag.*, Lond. **68**, 373-376.
- ✓ 1931. Berichtigungen der Identität gewisser jurassischer *Pecten*-Arten. *Zbl. Min. B*, 430-443.
- + 1931. The Upper Great Oolite, Bradford Beds and Forest Marble of south Oxfordshire, and the succession of gastropod faunas in the Great Oolite. *Quart. J. Geol. Soc. Lond.* **87**, 536-629, pls. 47-51.
1932. An unknown Kellaways locality in Dorset? *Geol. Mag.*, Lond. **69**, 44-45.
- + 1932. (With J. A. DOUGLAS.) The stratigraphical distribution of the Cornbrash. II. The north-eastern area. *Quart. J. Geol. Soc. Lond.* **88**, 112-170, pls. 10-12.
1933. On a boring into the Great Oolite at Latton, near Cricklade, Wilts. *Proc. Cotteswold Nat. Fld Cl. Gloucester*, **24**, 181-183.
- ✓ 1933. *The Jurassic System in Great Britain*. Oxford: Clarendon Press. Pp. xii, 681, 42 pls.
1933. New evidence on the Great Oolite succession at Bladon, near Woodstock, Oxfordshire. *Proc. Geol. Ass., Lond.* **44**, 177-183.

* Compiled by Miss M. F. Prior, to whom my thanks are due.

1933. (With L. RICHARDSON and J. PRINGLE.) The Lower Oolites exposed in the Ardley and Fritwell railway-cuttings, between Bicester and Banbury, Oxford. *Proc. Geol. Ass., Lond.* **44**, 340-354, pls. 34-35.
1933. (With K. S. SANDFORD.) Palaeolithic man and the Nile valley in Nubia and Upper Egypt. *Orient. Inst. Publ. Chicago*, **17**. Pp. xvii, 92, 43 pls., 1 folding map.
1934. (With K. S. SANDFORD.) Paleolithic man and the Nile valley in Upper and Middle Egypt. *Orient. Inst. Publ. Chicago*, **18**. Pp. xxi, 131, 39 pls., 1 folding map.
- ✓ 1934. On the genera *Corbicella* and *Quenstedtia* Morris & Lycett; a test case in nomenclature. *Ann. Mag. Nat. Hist.* (10), **14**, 371-382, pls. 9-10.
1934. The oysters of the Fuller's Earth; and on the evolution and nomenclature of the Upper Jurassic Catinulas and Gryphaeas. *Proc. Cotteswold Nat. Fld Cl. Gloucester*, **25**, 21-68, pls. 1-6.
1934. Whitson Field Meeting, 1934. The Isle of Purbeck. *Proc. Geol. Ass., Lond.* **45**, 412-419.
1934. The Corallian rocks in the new railway-cutting at Westbury, Wilts. *Geol. Mag.*, Lond. **71**, 317-320.
- + 1935. On the nature, origin and climatic significance of the coral reefs in the vicinity of Oxford. *Quart. J. Geol. Soc. Lond.* **91**, 77-110, pl. 6.
- ✓ 1935. The Portland Beds of the Dorset mainland. *Proc. Geol. Ass., Lond.* **46**, 301-347, pls. 19-26.
1935. On the Lower Kimmeridgian ammonite genera *Pictonia*, *Rasenia*, *Aulacostephanus* and *Ataxioceras*. *Geol. Mag.*, Lond. **72**, 246-257, pl. 11.
1935. *Corbula plicata* renamed. *Proc. Malac. Soc. Lond.* **21**, 248.
1935. (With J. A. DOUGLAS.) On a new section of fossiliferous Upper Cornbrash of north-eastern facies at Enslow Bridge, near Oxford. *Quart. J. Geol. Soc. Lond.* **91**, 318-322.
- 1935-48. A monograph on the ammonites of the English Corallian Beds. *Pal. Soc. Lond.* Pp. lxxxiv, 420, 78 pls.
1935. A reinterpretation of the Purbeck and Ridgeway faults in Dorset. *Rep. British Ass. Adv. Sci.* (Norwich, 1935), 377-378; *Pan-Amer. Geol.* **64**, 377.
1936. Analysis of the Mesozoic and Cainozoic folding in England. *Rep. 16th Internat. Geol. Congress (U.S.A. 1933)*, Washington, **2**, 937-952, 1 pl.
1936. The Corallian beds of Dorset. Part 1: The Coast. *Proc. Dorset. nat. Hist. Fld Cl.* **51**, 59-93, pls. 1-4.
1936. The ammonite zones of the Upper Oxfordian of Oxford and the horizons of Sowerby's and Buckman's types. *Quart. J. Geol. Soc. Lond.* **92**, 146-187, pls. 10, 11.
1936. The tectonics of the Purbeck and Ridgeway faults in Dorset. *Geol. Mag.*, Lond. **73**, 56-73, 97-118.
1936. Geological excursions in the Oxford district. *S. East. Nat.* **41**, 73-76.
- ✓ 1936. The Oxford district. Report of 'Coral Reef' meeting. *Proc. Geol. Ass., Lond.* **47**, 136-139.
1936. Rock paintings and drawings in North Africa, 1933-4. *Geogr. Rev.* **26**, 153-155.
1937. Postscript notes on the Ballard Down and Ridgeway faults. *Geol. Mag.*, Lond. **74**, 86-90.
- ✓ 1937. Report on ammonites collected at Long Stanton, Cambs., and on the age of the Amphill clay. *Summ. Progr. Geol. Surv. U.K.*, 1935 (2), 64-88, pls. 3, 4.
1937. The Ballard Down fault. *Geol. Mag.*, Lond. **74**, 431.
- ✓ 1937. The zonal position of the Elsworth rock and its alleged equivalent at Upware, Cambs. *Geol. Mag.*, Lond. **74**, 445-458.
- + 1938. Three tectonic problems of the Lulworth district: studies on the middle limb of the Purbeck fold. *Quart. J. Geol. Soc. Lond.* **94**, 1-53, pls. 1-6.
1938. The geology of the site of the Bodleian extension in Broad Street. *Oxoniensia*, **3**, 1-5, pl. 1.
1938. Zonal position of Elsworth rock. *Geol. Mag.*, Lond. **75**, 96.
1938. The age of the Elsworth rock. *Geol. Mag.*, Lond. **75**, 334.
1938. Elsworth rock and other matters. *Geol. Mag.*, Lond. **75**, 384.
- ✓ 1939. The ammonite succession at the Woodham Brick Company's Pit, Akeman Street Station, Buckinghamshire, and its bearing on the classification of the Oxford Clay. *Quart. J. Geol. Soc. Lond.* **95**, 135-222, pls. 8-11.

1939. Derived ammonites from the Lower Greensand of Surtey and their bearing on the tectonic history of the Hog's Back. *Proc. Geol. Ass., Lond.* **50**, 22-25.
1939. U-shaped burrows in the Corallian beds of Dorset. *Geol. Mag., Lond.* **76**, 455-458, pls. 7, 8.
1939. L'Oxfordien des falaises du Calvados. *Bull. Soc. Linn. Normandie* (9) **1**, 213-222.
- ✓ 1939. The Richardson collection of lamellibranchs from the Fuller's Earth Rock. *Proc. Dorset nat. Hist. Fld Cl.* **60**, 165-174.
1939. Map of the Corallian Beds between Marcham and Faringdon, Berkshire. *Proc. Geol. Ass., Lond.* **50**, 487-509, map.
1939. (With K. S. SANDFORD.) Paleolithic man and the Nile valley in Lower Egypt, with some notes upon a part of the Red Sea Littoral. *Orient. Inst. Publ., Chicago*, **46**. Pp. xiii, 105, 30 pls., 1 folding map.
1939. Geology. *Victoria History of the County of Oxford* (Oxford: University Press), 1-26, map.
1939. The site of Cherbury Camp. *Oxoniansia*, **4**, 196-197.
- ✓ 1940. Report on Mollusca from the pebbly sand below the Roach Bed at Swindon. *Proc. Geol. Ass., Lond.* **51**, 385-399.
- ✓ 1940. Fossils from the Fuller's Earth of the Weymouth anticline. *Geol. Mag., Lond.* **77**, 42-49, pl. 1.
1940. Some topographical names in Wiltshire. *Wiltsh. archaeol. nat. Hist. Mag.* **49**, 221-224.
1940. (With J. A. MOY-THOMAS.) Palaeontology and the taxonomic problem. *The New Systematics* (ed. J. Huxley) (Oxford: Clarendon Press), 395-410.
- ✓ 1940. Dorset geology, 1930-1940. *Proc. Dorset nat. Hist. Fld Cl.* **61**, 117-135.
- ✓ 1941. The gastropods of the Purbeck Beds. *Quart. J. Geol. Soc. Lond.* **97**, 79-128.
1941. Map of the Corallian beds around Highworth, Wiltshire. *Proc. Geol. Ass., Lond.* **52**, 79-109, folding map.
1941. Map of the Corallian beds around Purton, Wiltshire. *Wiltsh. archaeol. nat. Hist. Mag.* **49**, 274-282, folding map.
1941. Mineral resources of continental Europe. *Nature, Lond.* **147**, 404-407, 443-446.
- ✓ 1941. The Upper Oxford Clay at Purton, Wilts., and the zones of the Lower Oxfordian. *Geol. Mag., Lond.* **78**, 161-172, 316.
1941. Some topographical names in south Dorset. *Proc. Dorset nat. Hist. Fld Cl.* **62**, 39-49.
- ✓ 1941. (With P. C. SYLVESTER-BRADLEY.) Notes on the age of the Swindon Purbeck beds. *Proc. Geol. Ass., Lond.* **52**, 321-327.
1941. Diptera from White Horse Vale. *Ent. mon. Mag.* **77**, 251.
1942. Further notes on topographical names in south Dorset. *Proc. Dorset nat. Hist. Fld Cl.* **63**, 33-40.
1942. Place names and topography in the Upper Thames country. *Oxoniansia*, **7**, 1-23.
- ✓ 1943. Stratigraphy and structures east of Oxford. *Quart. J. Geol. Soc. Lond.* **98**, 187-204, coloured map.
1943. The Cleveland axis. *Geol. Mag., Lond.* **80**, 79-80, 120.
1943. The Pleistocene rocks at Trebetherick Point, north Cornwall; their interpretation and correlation. *Proc. Geol. Ass., Lond.* **54**, 141-170.
1943. Palaeolith from gravels at Sutton Benger. *Wiltsh. archaeol. nat. Hist. Mag.* **50**, 290.
1944. (With T. N. ARKELL.) A new Bronze Age site at Highworth, Wilts. *Wiltsh. archaeol. nat. Hist. Mag.* **50**, 373.
- ✓ 1944. Stratigraphy and structures east of Oxford. 2, The Miltons and Haseleys; 3, Islip. *Quart. J. Geol. Soc. Lond.* **100**, 45-73, folding map.
1945. The zones of the Upper Jurassic of Yorkshire. *Proc. Yorks. Geol. Soc.* **25**, 339-358.
1945. The names of the strata in the Purbeck and Portland stone quarries. *Proc. Dorset nat. Hist. Fld Cl.* **66**, 158-168.
1945. Palaeoliths from the Wallingford fan-gravels. *Oxoniansia*, **8-9**, 1-18.
1946. Three Oxfordshire palaeoliths and their significance for Pleistocene correlation. *Proc. prehist. Soc.* (1945), 20-31.
1946. Standard of the European Jurassic. *Bull. Geol. Soc. Amer.* **57**, 1-34.

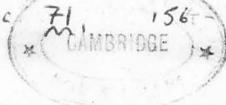
1946. On the holotype of *Ammonites cordatus* Sowerby, 1813. *Bull. Zool. Nomencl.* **1**, 181-184, pl. 2.
1946. A revision of the Upper Oxfordian ammonites of Trept (Isère), figured by de Riaz. *Geol. Mag., Lond.* **83**, 129-136.
1946. (With T. H. WHITEHEAD.) Field meeting at Hook Norton and Sibford, Oxfordshire. *Proc. Geol. Ass., Lond.* **57**, 16-18.
1946. The London excursion, 1725. *Proc. Geol. Ass., Lond.* **57**, 24-27. (This appeared anonymously.)
- ✓ 1946. (With L. RICHARDSON and H. G. DINES.) Geology of the country around Witney. *Mem. Geol. Surv. U.K. Explan. Sheet 236*. 150 pp., 8 pls.
- ✓ 1947. The geology of the Evenlode gorge, Oxfordshire. *Proc. Geol. Ass., Lond.* **58**, 87-114, pls. 1-3.
- ✓ 1947. *The geology of Oxford*. Oxford: Clarendon Press. 267 pp., 6 pls.
- ✓ 1947. *Oxford Stone*. London: Faber & Faber. 185 pp., 37 pls., folding map.
1947. A palaeolith from Sherborne. *Proc. Dorset nat. Hist. Fld Cl.* **68**, 31-32.
- ✓ 1947. (With C. W. WRIGHT and H. J. O. WRIGHT.) The geology of the country around Weymouth, Swanage, Corfe and Lulworth. *Mem. Geol. Surv. U.K.* Pp. xii, 386, 19 pls. Additions and corrections, 1952. Reprinted, 1953.
1948. Guide to excursion A.6. Oxford district. *18th Internat. Geol. Congress (Great Britain, 1948)*. 12 pp.
1948. Geology and prehistory from the train, Oxford-Paddington. *Oxoniansia*, **10**, 1-15, pls. 1-2.
1948. A palaeolith from the Hanborough Terrace. *Oxoniansia*, **11-12**, 1-4.
1948. The Treacher Collection of Middle Thames palaeoliths. *Oxoniansia*, **11-12**, 171-173.
1948. The building stones of Blenheim Palace, Cornbury Park, Glympton Park and Heythrop House, Oxfordshire. *Oxoniansia*, **13**, 49-54.
1948. A geological map of Swindon. *Wiltsh. archaeol. nat. Hist. Mag.* **52**, 195-212.
1948. Oxford Clay and Kellaways Beds, Weymouth. *Proc. Dorset nat. Hist. Fld Cl.* **69**, 122-124.
1948. Rutland Stone. *Leicestershire and Rutland Mag., Leicester*, **1** (1), 8-15.
- ✓ 1948-50. (With L. R. COX.) A survey of the Mollusca of the British Great Oolite Series, primarily a nomenclatorial revision of the monographs by Morris and Lycett (1851-55), Lycett (1863), and Blake (1905-07). *Pal. Soc. Lond.* Pp. xxiii, 105, revised explan. of pls.
1949. (With K. P. OAKLEY.) On the ancient channel of the Thames between Caversham and Henley, Oxfordshire, and its contained flint implements. *Proc. prehist. Soc.* (1948), 126-154.
1949. Oil-fields of north-west Germany. *Nature, Lond.* **164**, 996.
1949. Geological notes. *Proc. Dorset nat. Hist. Fld Cl.* **70**, 124-126.
1949. Jurassic ammonites in 1949. *Sci. Progr., Lond.* **37**, 401-417, pl. 1.
1950. The future of English building stones. *Endeavour*, **9**, 40-44.
- ✓ 1950. A classification of the Jurassic ammonites. *J. Paleont.* **24**, 354-364.
- ✓ 1950. Two early-named valid species of English Upper Jurassic ammonites. *Geol. Mag., Lond.* **87**, 265-266, pl. 13.
1950. Synonymous homonymy at generic level. *Geol. Mag., Lond.* **87**, 303.
1951. Red Sea rifting. *Geol. Mag., Lond.* **88**, 70-71.
1951. Note on the alleged Purbeckian at Murzuch, Fezzan, Libya. *Geol. Mag., Lond.* **88**, 315.
1951. Notes on nomenclature of Jurassic Phylloceratina. *J. Paleont.* **25**, 410.
1951. The structure of Spring Bottom Ridge and the origin of the mud-slides, Osmington, Dorset. *Proc. Geol. Ass., Lond.* **62**, 21-30, pl. 2.
- ✓ 1951. Dorset geology, 1940-50. *Proc. Dorset nat. Hist. Fld Cl.* **72**, 176-194, pls. 1-2.
- ✓ 1951. A search for the alleged Sinemurian in the Wadi Araba, eastern desert of Egypt. *Geol. Mag., Lond.* **88**, 305-314.

- ✓ 1951. The geology of the Corallian ridge near Wootton Bassett and Lyneham, Wilts. *Wiltsh. archaeol. nat. Hist. Mag.* **54**, 1-18, folding map.
1951. Proposed use of the plenary powers to validate the generic name *Sphaeroceras* Bayle, 1878 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Bull. Zool. Nomencl.* **2**, 164-165.
1951. Proposed designation, under the plenary powers, of the type species of the genus *Procerites* Siemiradzki, 1898 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 167-169.
1951. Proposed designation, under the plenary powers, of the type species of the genus '*Macrocephalites*' Zittel, 1884, and of the type specimen of '*Ammonites macrocephalus*' Schlotheim, 1813 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 170-172.
1951. Proposed designation, under the plenary powers, of the type species of '*Pictomia*' Bayle, 1878, and '*Rasenia*' Salfeld, 1913 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 178-180.
1951. Proposed use of the plenary powers to designate the type species of the genus '*Aulacostephanus*' Tornquist, 1896 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 188-190.
1951. Proposed use of the plenary powers to designate the type species of Waagen's (1869) ammonite genera '*Kosmoceras*', '*Harpoceras*' and '*Perisphinctes*' (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 191-193.
1951. Proposed use of the plenary powers to suppress the name '*Planites*' de Haan, 1825, and to determine the use of the name '*Nautilus polygyratus*' Reinecke, 1818 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 194-197.
1951. Application for the suppression under the plenary powers of five early generic names now fallen into desuetude published for ammonites (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 198-199.
1951. Proposal to suppress the generic name '*Ammonites*' Bruguière, 1789, under the plenary powers and to place the generic name '*Arietites*' Waagen, 1869 (Class Cephalopoda, Order Ammonoidea) on the 'Official list of generic names in zoology'. *Ibid.* **2**, 200-203.
1951. On the generic names '*Schlotheimia*' Bayle, 1878, and '*Scannoceras*' Lange, 1924; proposed use of the plenary powers to validate the name '*Ammonites undulatus*' Schlotheim, 1820 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 204-207.
1951. On the relative status of the names '*Arietoceras*' Seguenza, 1865, and '*Seguenziceras*' Levi, 1896 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 208-210.
1951. Proposed validation of the name '*Arisphinctes*' Buckman, 1924, by the suppression, under the plenary powers, of the name '*Toxosphinctes*' Buckman, 1923 (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 214-216.
1951. Proposed use of the plenary powers to designate the type species of the genus '*Arnioceras*' Hyatt, 1867 (Class Cephalopoda, Order Ammonoidea). *Ibid.* **2**, 217-219.
1951. Proposed use of the plenary powers to designate the type species of '*Liparoceras*' Hyatt, 1867, a genus based upon a misidentified type species (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 220-222.
1951. Proposed use of the plenary powers to designate the type species of '*Normannites*' Munier-Chalmas, 1892, a genus based upon a misidentified type species. (Class Cephalopoda, Order Ammonoidea) (Jurassic). *Ibid.* **2**, 222-223.
1951. Proposed addition to the 'Official list of generic names in zoology' of the names of twenty-one genera of Jurassic ammonites (Class Cephalopoda, Order Ammonoidea) and matters incidental thereto. *Ibid.* **2**, 224-233.
1951. Proposed use of the plenary powers for the purpose of making the trivial name '*virgula*' Deshayes, 1831 (as published in the binominal combination '*Gryphaea virgula*') (Class Pelecypoda) (Jurassic) the oldest available name for the species in question. *Ibid.* **2**, 234-235.

1951. Proposed use of the plenary powers for the purpose of making the trivial name '*asper*' Lamarck, 1819 (as published in the binominal combination '*Pecten asper*') (Class Pelecypoda) the oldest available name for the species in question. *Ibid.* **2**, 236-237.
1951. Objection to the proposal that '*Gryphaea angulata*' Lamarck, 1819 (Class Pelecypoda) should be designated as the type species of the genus '*Gryphaea*' Lamarck, 1819, by the suppression of the name '*Gryphaea*' Lamarck, 1801. *Ibid.* **2**, 331.
1951. Support for Dr L. R. Cox's proposal for the use of the plenary powers to validate the name '*Cardinia*' (Class Lamellibranchiata) as from Agassiz (1841). *Ibid.* **2**, 334.
1951. Thames terraces and Alpine glaciations: some recent correlations. *Archaeol. News Letter*, **4** (2), 17-19.
1951. The geological map of Blenheim. Appendix 1 to David Green, *Blenheim Palace* (London: Country Life), 293-295.
- 1951-58. Monograph of the English Bathonian ammonites. *Pal. Soc. Lond.*, 208 pp., 29 pls. (not yet completed).
1952. A Middle Bathonian ammonite fauna from Schwandorf, northern Bavaria. *Schweiz. palaeont. Abh.* **69**, 18 pp., 3 pls.
1952. (With R. A. BRAMKAMP and M. STEINECKE.) Jurassic ammonites from Jebel Tuwaiq, Central Arabia. *Phil. Trans. B.* **236**, 241-313, pls. 17-31.
- ✓ 1952. (With D. T. DONOVAN.) The Fuller's Earth of the Cotswolds and its relation to the Great Oolite. *Quart. J. Geol. Soc. Lond.* **107**, 227-253, pls. 13-16.
1952. (With E. L. HOLT.) Ammonites from the Upper Oxford Clay at Sandgate Hill, near Huntingdon. *Proc. Geol. Ass., Lond.* **63**, 17-19.
1952. Jurassic Ammonoidea. *J. Paleont.* **26**, 860-861.
1952. Stones of Trinity. *Trinity Mag., Cambridge*, May 1952, 6-8.
- ✓ 1953. Seven new genera of Jurassic ammonites. *Geol. Mag., Lond.* **90**, 36-40, pl. 1.
1953. Bajocian ammonites collected by Sir Henry Hayden near Kampadzong, Tibet. *Geol. Mag., Lond.* **90**, 331-336, pls. 13-14.
- ✓ 1953. Two Jurassic ammonites from South Island, New Zealand, and a note on the Pacific Ocean in the Jurassic. *N.Z. J. Sci. Tech.* **B, 35**, 259-264.
1953. Proposals relating to the specimen which should be accepted in certain circumstances as the type specimen of a species to which a substitute name is given. *Bull. Zool. Nomencl.* **10**, 169-171.
1953. Question whether a name given to a nominal genus, the type specimen of which is a pathological monstrosity, should be given any status of availability. *Ibid.* **10**, 295.
- ✓ 1953. (With G. LUCAS.) Découverte récente du genre *Ermoceras* Douvillé dans l'Atlas saharien occidental. *C.R. Acad. Sci., Paris*, **236**, 2257-2259.
- ✓ 1953. (With S. I. TOMKIEFF.) *English rock terms, chiefly as used by miners and quarrymen*. Oxford: University Press. Pp. xx, 139.
1953. The geological background. The influence of geology on settlement. *The Place-Names of Oxfordshire, English Place-Name Soc. Publ.* **23**, pp. xi-xiii, xiii-xxix.
1954. Proposed adoption of a 'Declaration' that a generic or specific name based solely upon the 'aptychus' of an ammonite (Class Cephalopoda, Order Ammonoidea) be excluded from availability under Article 27 of the 'Règles' and proposed suppression of certain such names under the plenary powers. *Bull. Zool. Nomencl.* **9**, 266-269.
1954. Proposed use of the plenary powers to suppress the generic name '*Caenites*' Buckman 1925, founded upon a monstrosity (Class Cephalopoda, Order Ammonoidea). *Bull. Zool. Nomencl.* **6**, 364-366.
1954. Alexandre Bigot. *Proc. Geol. Ass., Lond.* **65**, 86-87.
- ✓ 1954. (With H. R. WARMAN.) A review of the Jurassic of western Sicily based on new ammonite faunas. *Quart. J. Geol. Soc. Lond.* **110**, 267-282.
- ✓ 1954. Three complete sections of the Cornbrash. *Proc. Geol. Ass., Lond.* **65**, 115-122.
1954. (With P. E. PLAYFORD.) The Bajocian ammonites of Western Australia. *Phil. Trans. B.* **237**, 547-605, pls. 27-40.

1955. George Martin Lees, 1898-1955. *Biographical Memoirs of Fellows of the Royal Society*, **1**, 163-173.
1955. Polar wandering [contribution to colloquium on]. *Nature, Lond.* **176**, 423-424.
1955. Proposed use of the plenary powers to validate the generic name 'Pachyceras' Bayle, 1878 (Class Cephalopoda, Order Ammonoidea) (Jurassic) by suppressing the generic name 'Pachyceras' Ratzeburg, 1844 (Order Hymenoptera; living). *Bull. Zool. Nomencl.* **11**, 28-32.
1955. Designation of a type genus for the nominal Order 'Ammonoidea' Zittel, 1884, and proposed addition of that name to the official list of names in the Order/Class group in zoology. *Ibid.* **11**, 199-200.
1955. Proposed use of the plenary powers to validate and protect the family-group name 'Mayaitidae' Spath (L.F.), 1928 (Class Cephalopoda, Order Ammonoidea). *Ibid.* **11**, 229-231.
1955. Support for the validation, under the plenary powers, of the name 'Pleurotomaria' Sowerby (J.), 1821 (Class Gastropoda). *Ibid.* **11**, 272.
1955. Proposed suppression under the plenary powers of the family-group name 'Seguenzi-ceratidae' Spath (L.F.), 1924 (Class Cephalopoda, Order Ammonoidea). *Ibid.* **11**, 297-298.
1955. (With G. BUSSON.) Le Jurassique du massif de Bou-Rheddou (nord de Tiaret, Algérie). *C.R. Acad. Sci., Paris*, **241**, 422-424.
- ✓ 1956. *Jurassic Geology of the World*. Edinburgh and London: Oliver & Boyd. 806 pp., 46 pls.
- ✓ 1956. Geological results of the cloudburst in the Weymouth district, 18th July, 1955. *Proc. Dorset nat. Hist. Fld Cl.* **77**, 90-96, pls. 1-4.
1956. The boundary between Middle and Upper Jurassic. *Geol. Mag., Lond.* **93**, 436-437.
1956. Comments on stratigraphic procedure and terminology. *Amer. J. Sci.* **254**, 457-467.
1956. The effects of storms on Chesil Beach in November, 1954. *Proc. Dorset nat. Hist. Fld Cl.* **76**, 141-145.
1956. Species and species. *The species concept in palaeontology, Systematics Ass., Lond. Publ.* **2**, Pt. 2, 97-99.
1956. (With D. T. DONOVAN.) The ammonite genera *Amioceras* and *Coroniceras* Hyatt. *Geol. Mag., Lond.* **93**, 517-518.
1957. (With B. KUMMEL and C. W. WRIGHT.) Mesozoic Ammonoidea. *Treatise on Invertebrate Paleontology* (ed. R. C. Moore) (Geol. Soc. Amer. & Univ. Kansas Press), Part L, pp. L80-L465.
1957. Proposed adoption of a 'Declaration' that a generic or specific name based solely upon the 'aptychus' of an ammonite (Class Cephalopoda, Order Ammonoidea) be excluded from availability under Article 27 of the 'Règles'. *Bull. Zool. Nomencl.* **15**, 71-75.
1957. Sutures and septa in Jurassic ammonite systematics. *Geol. Mag., Lond.* **94**, 235-248.
- ✓ 1957. Ammonites from the Fuller's Earth Rock, Whatley, Somerset. *Geol. Mag., Lond.* **94**, 322-325.

1960 Report on derived Jurassic Ammonites, in Allen, P.
Proc. Geol. Assoc. 71, 156-167



1957 with Sylvester Bradley Appendix on the Ammonite fauna