

(*Monotis* and *Hyalorites*) indicate the correlation of these beds with the *Monotis*-beds of Spiti and the Alaunic (Middle Noric) sub-stage of the Alpine Upper Trias.

An exhaustive memoir on the Foraminifera of the Indian Tertiary by Mr. Vredenburg is to appear in the *Palæontologia Indica*. The Nummulitic fauna is said to be a very rich one, nearly all the most important types being represented in it. Many interesting points relating to the zoological aspects of the group will also be brought to light.

Mr. Fermor's petrological studies of the Deccan Trap formation point to the important conclusion that the basalts and rhyolites of Pavagad Hill (Bombay) are genetically related to one another.

Under "Seismology" special reference is made to the destructive earthquake in the Kangra valley on the 4th April, 1905. A compilation of the results of inquiries relating to it that were set on foot by the Survey immediately after the event is published in vol. xxxii of the "Records."

A. H. F.

OBITUARY.

PROFESSOR J. F. BLAKE, M.A., F.G.S.

BORN APRIL 3, 1839.

DIED JULY 7, 1906.

THE REV. JOHN FREDERICK BLAKE, M.A., F.G.S., who died on July 7th, 1906, at his residence, 35, Harlesden Gardens, N.W., was born at Stoke-next-Guildford on the 3rd April, 1839; he was son of the Rev. Robert P. Blake, and married in 1866 the youngest daughter of the Rev. F. F. Haslewood, Rector of Smarden, Kent. J. F. Blake was educated at Christ's Hospital, London, gaining the first prize medal in Mathematics in 1852, and at Caius College, Cambridge, where he was Senior Scholar and Prizeman in various subjects, and a pupil from 1859–1862 of the illustrious Professor Sedgwick. In 1862 he took his B.A. degree as fifteenth Wrangler, and was first of that year in the Natural Science Tripos. In the same year he edited, in conjunction with the late Prebendary W. A. Whitworth and other representatives of Cambridge, Oxford, and Dublin Universities, a journal known as the *Messenger of Mathematics*, promoted to encourage original investigation, and to unite in style and selection of subjects the three schools, with the view of forming an undivided English School of Mathematics. Ordained at Lincoln Cathedral, Blake became Curate of Lenton, Nottingham, 1862–4, and subsequently held for a short period the curacy of St. Mary's, Bryanston Square, London. In 1865 he was appointed Mathematical Master and Assistant Chaplain at St. Peter's School, York, where he remained for nine years. Among his pupils who have since distinguished themselves may be mentioned: the Rev. P. Braithwaite, appointed Dean of Jersey 1888; H. Tomlinson, F.R.S.; A. T. Pollard, Head Master of the City of London School; G. H. Pickersgill, M.P.; W. Y. Fausset, Head Master of

Ripon School; and Dr. Alan Gray, the eminent musician and organist of Trinity College, Cambridge. In 1874 he gave up clerical work in order to devote himself specially to science, and left York for London. Soon afterwards, at the request of Professor Hughes, of Cambridge, he undertook the Science Lectures for a term at Aberystwith College. From 1876 to 1880 Blake was Lecturer on Comparative Anatomy at Charing Cross Hospital, and in 1878–9 he delivered the course of lectures on the same subject at King's College for the late Professor A. H. Garrod. He was an Examiner for the Civil Service Commission in Geology and Mathematics, and for many years Assistant Examiner in Physiography for the Science and Art Department. Until quite recently he was an Honorary Examiner in Geology to the City of London College, Moorfields. In 1877 Blake was awarded by the Council of the Geological Society the 'Murchison Fund,' in recognition of his original researches, chiefly in Palæontology and Stratigraphical Geology.

The Government Grant Committee recommended Professor Blake for several grants in aid of his work on the British Palæozoic Cephalopoda, and also in aid of stratigraphical researches on the Jurassic rocks of the Continent as compared with those of Britain.

In 1880 he was appointed Professor of Natural Science at University College, Nottingham, and Curator of the Museum, where he remained for eight years. Here he inaugurated and became first President of the Students' Association, and editor of the College "Record." In 1888 he again removed to London, and soon became actively engaged in bringing out the "Annals of British Geology," which ran into four volumes, 1890–1893. Owing to his acceptance of an appointment to equip and arrange the State Museum at Baroda, he was obliged to relinquish this work, and in the winter of 1895 he sailed for India. It was during his temporary absence from England that he met with the great calamity of his life in the loss of his wife, which occurred when they had been parted only two months.

In recognition of the valuable services rendered to Geology and Palæontology during a period of almost a quarter of a century, he was in 1895 awarded the Lyell Medal by the Council of the Geological Society. In 1891–2 he was President of the Geologists' Association, and at the time of his death a Vice-President. He was elected President of the Metropolitan Scientific Association, 1889, and of the London Amateur Scientific Society, 1890 and 1891. Professor Blake conducted many excursions of the Geologists' Association; and the enthusiasm and vigour which he displayed were remarkable. He served on the Council of the Geological Society, and was for some time Editor of the Proceedings of the Geologists' Association. As a member of the International Geological Congress, he attended the meetings held in Philadelphia, London, Switzerland, and Russia. At the London meeting of 1888 he conducted a party of the members through North Wales and over Snowdon. He seldom missed the meetings of the British Association, and read many papers in the Geological Section. Professor Blake was present at the Montreal meeting in 1884, and undertook by himself a difficult journey to

the Rocky Mountains. His impressions of the district are embodied in a paper read at the meeting.

The more noteworthy of Professor Blake's contributions to geological science were those on the Kimmeridge Clay and Portland Beds, and that, prepared conjointly with Mr. Hudleston, on the Corallian rocks—papers that have become classic in the literature of British geology. It is much to be regretted that the monograph on the Fauna of the Cornbrash, on which he was engaged up to the time of his death, was not completed by the author.

Blake was not averse to geological battles, and he entered into sundry controverted matters with characteristic energy, but occasionally with more zeal than discretion. Thus he dealt with (what were at the time) the thorny subjects of the Pre-Cambrian rocks of St. David's, the North-West Highland problems, the Oligocene of the Isle of Wight, and the older rocks of North Wales.

With regard to Professor Blake's work in Anglesey, one who has had occasion to follow it in detail writes:—It seems hardly to have met with the recognition that it deserves. That he erred on certain points is true, but in regions such as Anglesey who has not? The "Monian System" did not, indeed, find general acceptance, but what Pre-Cambrian system has? On the other hand, his principal sub-divisions, as such, hold good for the most part. He discovered the Glaucofane Schist. He discovered the Variolite. These facts alone are enough to show how great an advance his work represents in our knowledge of the older rocks of Anglesey.

He leaves a family of three sons and one daughter to mourn his loss, the eldest of whom is Demonstrator of Chemistry in Queen's College, Belfast, and a Public Analyst in Ireland.

Publications.

- "A Catechism of Zoology." 12mo; London, 1873.
- "The Yorkshire Lias." 8vo; London, 1876. (In conjunction with Professor Ralph Tate.)
- "Astronomical Myths." 8vo; London, 1877. (Based on Flammarion's History of the Heavens.)
- "The Geological Results of Arctic Exploration." 12mo; London, 1878.
- "A Monograph of British Fossil Cephalopoda." 4to; London, part i, 1882.
- "Catalogue of the Collection of Metallurgical Specimens formed by the late John Percy, Esq., M.D., F.R.S." 8vo; London, 1892 (Eyre & Spottiswoode).
- "Annals of British Geology." 4 vols., 1890-93; London (Dulau & Co.).
- "Catalogue of Type- and other Specimens in the Museum of the Geological Society." 8vo; London, 1902.
- "A Monograph of the Fauna of the Cornbrash," part i; Monogr. Palæont. Soc. 59 (1905), pp. 1-100.

List of Scientific Papers and Memoirs.

- "The Red Chalk": Proc. Yorkshire Nat. Club, 1869 (1870); GEOL. MAG., Vol. VII, p. 300.
- "The Yorkshire Lias and the Distribution of its Ammonites": Brit. Assoc. Rep., vol. xli (1871), pp. 90-92.
- "On the Infralias in Yorkshire": GEOL. MAG. (1872), p. 137; Quart. Journ. Geol. Soc., vol. xxviii (1872), pp. 132-146; Phil. Mag., vol. xliii (1872), pp. 543-544.
- "Additional Remains of Pleistocene Mammals in Yorkshire": Brit. Assoc. Rep., vol. xliii (1873), p. 75.
- "On the Oldest known British *Trigonia*": GEOL. MAG. (1873), p. 186.

- “Note on the Red Chalk in Yorkshire”: *GEOL. MAG.* (1874), pp. 362–364.
- “On the Kimmeridge Clay of England”: *GEOL. MAG.* (1875), p. 135; *Quart. Journ. Geol. Soc.*, vol. xxxi (1875), pp. 196–233.
- “On the Silurian Formation”: *GEOL. MAG.* (1876), p. 134.
- “On the Motion of Glaciers”: *GEOL. MAG.* (1876), pp. 493–499.
- “On the Yorkshire Lias”: *GEOL. MAG.* (1876), p. 511.
- “On *Rensselaeria Sorbyana*”: *Monthly Microsc. Journ.*, vol. xv (1876), pp. 262–264.
- “On the Corallian Rocks of England” (in conjunction with W. H. Hudleston, Esq.): *Quart. Journ. Geol. Soc.*, vol. xxxiii (1877), pp. 260–405; *Phil. Mag.*, vol. iii (1877), pp. 154–156.
- “History of the Restoration of Extinct Animals” (1877): *Geol. Assoc. Proc.*, vol. v (1878), pp. 91–103.
- “The Coral Rag of Upware”: *GEOL. MAG.* (1878), p. 90.
- “On Palaeozoic Cephalopoda”: *GEOL. MAG.* (1878), p. 573.
- “On the Chalk of Yorkshire” (1877): *Geol. Assoc. Proc.*, vol. v (1878), pp. 232–270.
- “On the Measurement of the Curves formed by Cephalopods and other Mollusks”: *Phil. Mag.*, vol. vi (1878), pp. 241–263.
- “On the Homologies of the Cephalopoda”: *Ann. Mag. Nat. Hist.*, vol. iv (1879), pp. 303–312.
- “On Geological Episodes”: *Brit. Assoc. Rep.* (1879), pp. 335–336.
- “On the Portland Rocks of England”: *GEOL. MAG.* (1880), p. 89; *Quart. Journ. Geol. Soc.*, vol. xxxvi (1880), pp. 189–235.
- “Note sur l’âge du grès de Châtillon”: *Paris Soc. Géol. Bull.*, vol. viii (1880), pp. 640–642.
- “The Portland Building Stone”: *Popular Sci. Review*, vol. xix (1880), pp. 205–212.
- “On the Classification of Rocks” (1880): *Geol. Assoc. Proc.*, vol. vi (1881), pp. 413–425.
- “On the Correlation of the Upper Jurassic Rocks of England with those of the Continent,” part i, The Paris Basin: *Quart. Journ. Geol. Soc.*, vol. xxxvii (1881), pp. 497–587; *GEOL. MAG.* (1881), p. 284.
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- “On the Pre-Cambrian Igneous Rocks of St. David’s”: *Brit. Assoc. Proc.* (1883), pp. 507–508.
- “On a Continuous Section of the Oligocene Strata from Colwell Bay to Headon Hill” (1881): *Geol. Assoc. Proc.*, vol. vii (1883), pp. 151–161.
- “The North-West Highlands and their Teachings” (1884): *Geol. Assoc. Proc.*, vol. viii (1884), pp. 419–437.
- “On the Volcanic Group of St. David’s”: *GEOL. MAG.* (1884), p. 92; *Quart. Journ. Geol. Soc.*, vol. xl (1884), pp. 294–311.
- “Criticisms about Faults”: *GEOL. MAG.* (1884), p. 366.
- “First Impressions of some Pre-Cambrian Rocks of Canada”: *Brit. Assoc. Rep.* (1884), pp. 728–729.
- “Theory of Faults”: *GEOL. MAG.* (1885), p. 285.
- “Introduction to the Monian System of Rocks”: *Brit. Assoc. Rep.* (1886), p. 669.
- “On the Igneous Rocks of Llyn Padarn, Yr Eifl, and Boduan”: *Brit. Assoc. Rep.* (1886), p. 669.
- “On a New Specimen of *Solaster Murchisoni* from the Yorkshire Lias”: *GEOL. MAG.* (1887), pp. 529–531; *Brit. Assoc. Rep.* (1887), p. 716.
- “The Microscopic Structure of the Older Rocks of Anglesey”: *Brit. Assoc. Rep.* (1887), pp. 230–231.
- “On the Occurrence of a Glaucophane-bearing Rock in Anglesey”: *GEOL. MAG.* (1888), pp. 125–127.
- “On the Cambrian and Associated Rocks in North-West Carnarvonshire”: *Quart. Journ. Geol. Soc.*, vol. xlv (1888), pp. 271–290; *GEOL. MAG.* (1888), p. 93.
- “On the Monian System of Rocks”: *GEOL. MAG.* (1888), pp. 184, 560, and (1889) p. 45; also *Quart. Journ. Geol. Soc.*, vol. xlv (1888), pp. 463–547.
- “Esquisse de la Géologie des Roches anciennes de l’île d’Anglesey et du Nord-ouest du Carnarvonshire”: *Congrès Geol. International, Londres* (1888).
- “On the genus *Asoceryas*”: *GEOL. MAG.* (1889), p. 44.
- “A Visit to the Volcanoes of Italy”: *Geol. Assoc. Proc.*, vol. xi (1889), pp. 145–176.

- “On the Monian and Basal Cambrian Rocks of Shropshire”: *Quart. Journ. Geol. Soc.*, vol. xlvi (1890), pp. 386–420.
- “On the Base of the Sedimentary Series in England and Wales”: *GEOL. MAG.* (1890), pp. 308–354.
- “The Cambrian Conglomerate of St. David’s”: *GEOL. MAG.* (1890), p. 525.
- “On the Inefficiency of Natural Selection for the Origin of Species”: *London Amateur Scientific Soc. Proc.* (1890). (Presidential Address.)
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- “The Geology of the Country between Redcar and Bridlington”: *Geol. Assoc. Proc.*, vol. xii (1891), p. 115.
- “Excursion to the Isle of Wight”: *Geol. Assoc. Proc.*, vol. xii (1891), p. 145.
- “Geological Optics”: *London Amateur Scientific Soc. Proc.*, vol. i (1891), p. 66. (Presidential Address.)
- “The Effects of Pressure on Rock Structure”: *Abs. Western Microscopical Club Proc.* (1891), p. 6.
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- “The Evolution and Classification of the Cephalopoda, an account of recent advances”: *Geol. Assoc. Proc.*, vol. xii (1892), pp. 275–295.
- “A General Sketch of the Geology of Carnarvonshire and Anglesey”: *Geol. Assoc. Proc.*, vol. xii (1892), pp. 358–378.
- “Excursion to Nottingham”: *Geol. Assoc. Proc.*, vol. xii (1892), pp. 386–392.
- “On the still possible Cambrian Age of the Torridon Sandstones”: *Brit. Assoc. Rep.* (1892), p. 713.
- “On two Tunnel Sections in the Cambrian of Carnarvonshire”: *Brit. Assoc. Rep.* (1892), p. 718.
- “On the Bases of the Classification of Ammonites”: *Geol. Assoc. Proc.*, vol. xiii (1893), pp. 24–39.
- “Excursion to Brill”: *Geol. Assoc. Proc.*, vol. xiii (1893), pp. 71–74.
- “On the Felsites and Conglomerates between Bethesda and Llanllyfni, North Wales”: *Quart. Journ. Geol. Soc.*, vol. xlix (1893), pp. 441–465.
- “On the Shell Beds of Moel Tryfaen”: *GEOL. MAG.* (1893), pp. 267–270.
- “Felsites and Conglomerates, Bethesda and Llanllyfni”: *GEOL. MAG.* (1893), p. 287.
- “The Landslip at Sandgate”: *Nature*, vol. xlvii (1893), pp. 467–469; *Surveyor*, vol. iii (1893), pp. 199–201.
- “On Sporadic Glaciation in the Harlech Mountains”: *Brit. Assoc. Rep.* (1894), pp. 659–660; *GEOL. MAG.* (1894), p. 510.
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- “Densities in the Earth’s Crust”: *Phil. Mag.*, ser. v, vol. xxxviii (1894), p. 413.
- “Geology of Harlech Area”: *GEOL. MAG.* (1894), p. 565.
- “The Laccolites of Cutch”: *GEOL. MAG.* (1897), p. 331.
- “On some Superficial Deposits in Cutch”: *Quart. Journ. Geol. Soc.*, vol. liii (1897), pp. 223–244.
- “*Acanthonautilus bispinosus*”: *GEOL. MAG.* (1897), p. 287.
- “A Revindication of the Llanberis Unconformity”: *GEOL. MAG.* (1898), pp. 169–178 and 214–226.
- “On Aggregate Deposits and their Relations to Zones”: *GEOL. MAG.* (1898), pp. 481–488; *Brit. Assoc. Rep.* (1898), p. 872.
- “Excursion to Bridport and Weymouth”: *Geol. Assoc. Proc.*, vol. xv (1898), pp. 293–324.
- “The Laccolites of Cutch and their Relations to the other Igneous Masses of the District”: *Quart. Journ. Geol. Soc.*, vol. liv (1898), pp. 12–13.
- “Sur la Distribution des Fossiles non seulement en Zones mais aussi en Provinces”: *C.R. Congrès Geol. International*, vol. vii (1899), pp. 175–178.
- “Suggestions in regard to the Registration of Type-Fossils”: *Brit. Assoc. Rep.* (1900), p. 744; *GEOL. MAG.* (1900), pp. 471–473.
- “Fossils in the Devonian Rocks of North Cornwall”: *GEOL. MAG.* (1900), p. 239.
- “On a remarkable Inlier among the Jurassic Rocks of Sutherland, and its bearing on the Origin of Breccia-beds”: *Quart. Journ. Geol. Soc.*, vol. lviii (1902), pp. 290–312.

- “On the Original Form of Sedimentary Deposits”: Brit. Assoc. Rep. (1902), pp. 603–604; *Geol. Mag.* (1903), pp. 12–18 and 72–80.
- “Notes on the species ‘*Am. plicatilis*’ and ‘*Am. bplex*’ of Sowerby”: *Geol. Mag.* (1904), pp. 162–166.
- “The Silurian Cephalopoda”: *Geol. Assoc. Proc.*, vol. xviii (1904), pp. 451–454.
- “On the Order of Succession of the Maun Slates in their Northern Half, and its bearing on the Origin of the Schistose Breccia associated therewith”: *Quart. Journ. Geol. Soc.*, vol. lxi (1905), pp. 358–373.

Articles.

- “Cuttlefish”: *Encyclopædia Britannica*.
- “Geology of Nottinghamshire”: *Victoria History of the Counties*.
- “Origin and History of the Thames”: *Marylebone Mercury* (1891).

GEORGE FREDERICK HARRIS, F.G.S.

BORN SEPTEMBER 13, 1862.

DIED JULY 16, 1906.

As supplementary to the short notice given in our last number (p. 384), we may mention that Mr. Harris was born at Anglesey in Hampshire, and educated at Netherhampton House School, Wilton, near Salisbury. He subsequently attended classes at King's College, London, and the Birkbeck Institution. At an early age he became interested in geology and archæology, and he enlarged his knowledge during extensive travels in Europe and during visits paid to North Africa and the United States.

To the *GEOLOGICAL MAGAZINE* he contributed papers on “The Gelinden Beds,” 1887, p. 108; on “The Geology of Gironde,” 1890, p. 22; and “A Journey through Russia,” 1898, pp. 9, 110.

In conjunction with Mr. H. W. Burrows, A.R.I.B.A., F.G.S., he published a valuable account of “The Eocene and Oligocene Beds of the Paris Basin,” with geological map and sections, and numerous lists of species and localities, pp. 1–129, 8vo (read before the Geologists' Association, April 3, 1891, and published separately, E. Stanford, price 3s.).

He added an Appendix to Mr. R. B. Newton's Systematic List of British Oligocene and Eocene Mollusca in the British Museum (1891), and prepared a catalogue of the Tertiary Mollusca of Australia¹ in the Geological Department (1897), 8vo, pp. 26 and 408, with 8 plates, printed by order of the Trustees of the British Museum. In conjunction with Mr. Burrows he also named and arranged the Foreign Tertiary Mollusca in the Geological Department of the British Museum.

Mr. Harris was for more than 20 years a regular contributor to the *Builder*, and wrote a series of articles upon “Building Stones,” which were afterwards published separately. His attention thus became directed to questions of practical geology. He issued in 1888 a work entitled “Granites and our Granite Industries,” and wrote on London Water Supply (1892); he contributed for

¹ Intended to be one of a series.