

CORRESPONDENCE.

ZONES OF THE CHALK AREA OF NORTH-WEST MIDDLESEX
AND EAST BUCKS.

SIR,—For some time up to about two years ago I was occupied, when occasion permitted, in zoning the Chalk area of North-West Middlesex and East Bucks. Latterly I have been too busy, and I find the chance of my ever being able to take up the work again very remote. I am therefore sending you a note of such results as were obtained.

The sections most carefully worked were—

- (1) About 1 mile N.W. of Denham, in the most southerly Chalk outcrop.
- (2) About 1 mile N. of Denham, just under the h 5 in the 1 in. drift sheet.
- (3) Troy Mills, about 2 miles N of (2).
- (4) Harefield Cement Works Pit.
- (5) Harefield Gelatinous White Co.'s Pit.
- (6) Springwell Pit.
- (7) Pit on Golf Course at Sandy Lodge.

Marsupites and *Uintacrinus* were nowhere found, in spite of careful search. From Nos. 1 and 2 came several high-zonal *M. cor-anguinum*, and from Nos. 3, 4, and 7 low-zonal *cor-anguinum*. In Nos. 5 and 6, both of which have a section of about 80 feet from the pit floor to the top, the floor in each case being nearly at the same level above O.D., both *M. cor-anguinum* and *M. cor-testudinarium* were found, as well as passage forms, so that both these zones would seem to occur. *M. cor-testudinarium* was also found in an excavation below the level of the floor at Harefield. The junction of the zones can be conveniently taken at a band of comminuted mollusca and echinoids which occurs in both sections.

This band was only a few feet above the floor at Harefield, but at Springwell it was about half-way up, or nearly 40 feet above the floor. This gives a difference of 30 feet in a north-south distance of $1\frac{1}{2}$ miles, or 20 feet to the mile. As *M. cor-anguinum* was found near Chorley Wood, nearly two miles north of Springwell, and the same species occurs near Watford, there must be a rather sharp flexure of the Chalk south of Rickmansworth, bringing up the lower zones.

Fossils are not common, except in the lower parts of pits 5 and 6, i.e. in the *M. cor-testudinarium* zone. Most characteristic are a flat broad-based pentangular variety of *Discoidea cylindrica* and *Echinocorys vulgaris*. *Parasmilia centralis* was not infrequent. The flints are very spongiferous.

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OBITUARY.

RICHARD LYDEKKER,

B.A. (CAMB.), F.R.S., F.G.S., F.Z.S., J.P. HERTS.

BORN 1849.

DIED APRIL 16, 1915.

It is with deep regret we have to record the death at Harpenden, in his 66th year, of our esteemed friend Richard Lydekker. He was for many years a fellow-worker in palæontology with your Editor, in the British Museum (Natural History), where by his

scientific labours he has left his mark on the Zoological and Geological Collections in both Departments.

Born in 1849, Richard was the eldest son of the late G. W. Lydekker. He entered Trinity College, Cambridge, 1869, where he passed second in 1st class Natural Science Tripos in 1871, taking his B.A. degree. He joined the staff of the Geological Survey of India in 1874, and during his residence there as an officer of the Survey spent much time in the field, and we have to thank him, amongst other excellent pieces of geological work, for a detailed account of the vast mountainous area comprised within the territories of Kashmir.

He commenced his labours in the domain of Vertebrate Palæontology, by a study of the Siwalik fossils, and was able to contribute numerous valuable additions to the classic work of Falconer and Cautley. Many other Tertiary Vertebrata, from various parts of India and Burma, have been examined and described by him. He has also given an account of the Pleistocene fauna of the Karnul caves, and has contributed to our knowledge of the Indian Mesozoic Reptilia. He returned to England in 1882, and took up his residence permanently at his family home, Harpenden Lodge, Harpenden, Herts. In the same year Mr. Lydekker married Lucy Marianne, the eldest daughter of the Rev. Canon O. W. Davys, M.A., Rector of Wheathampstead.

Shortly after this he commenced to study and catalogue the Fossil Vertebrata in the Geological Department of the British Museum (Natural History), and in 1884 completed vol. i of a series of five volumes on *The Fossil Mammalia in the British Museum*, the fifth volume being issued in 1887. From the Mammals he proceeded to the Fossil Reptilia and Amphibia, the catalogue of which was published in four volumes between June, 1888, and April, 1890. The final volume, on the Fossil Birds, he brought out in 1891, thus earning for himself with the Museum staff the good-natured sobriquet of "our lightning cataloguer". Indeed, Mr. Lydekker at that time was undoubtedly the most assiduous worker, as a scientific man, I think, that I ever met, and his catalogues of the vast collections of fossil vertebrates in the Museum are pioneer works of the greatest possible value to his successors.

With Professor H. A. Nicholson, Lydekker undertook a third and much enlarged edition of the former's well-known textbook of Palæontology, in two massive volumes, the second, on the Vertebrata, being by him. With Sir William Flower he collaborated in an excellent volume on *Mammals, Living and Extinct*, which appeared in 1891 (pp. 764). Later, on the recommendation of Flower, he visited the National Museum of Argentina at Buenos Aires, and there prepared and published, with the help of Dr. Moreno, the Director, "Descriptions of South American Fossil Animals" (for the *Annals Museo La Plata*). He assisted Sir William Flower in the rearrangement of the entire mammalian collections (after Dr. Günther's retirement) in the Zoological Galleries of the British Museum (Nat. Hist.), and continued similar work almost up to the time of his death. In 1896 he produced a volume entitled *The Geographical History of Mammals*, to which he attached especial importance, and of which he always hoped to publish a revised edition. His work

in the laborious task of preparing the part of the *Zoological Record* relating to the Mammalia from the year 1887 on is of the greatest value to workers on that group, and enabled him to acquire an unrivalled knowledge of the literature referring to it.

His contributions to the GEOLOGICAL MAGAZINE exceed seventy in number (1883–1901), whilst his papers to the Geological and Zoological Societies, to the *Annals and Magazine of Natural History*, and to other publications were equally numerous; but latterly, as he himself said, in 1902¹: “I have lately been led to transfer my time and attention more and more to *recent animals* and to geographical distribution; and much of it has been given also to popular or semi-popular writing, rather than to strictly scientific work.”

Nevertheless, Lydekker's latter publications have been of a highly interesting and instructive character, as for example his work on *The Deer of All Lands; Wild Oxen, Sheep, and Goats of All Lands; The Great and Small Game of India, Burma, and Tibet; The Great and Small Game of Europe, North and West Asia, and America*; three volumes of Allen's Naturalists' Library, mostly Mammals; *Horns and Hoofs; The Game Animals of Africa; The Sportsman's British Birds; A Trip to Pilawin*. Mr. Lydekker is also the author of the part of the *Royal Natural History* which relates to the Vertebrata, a work well illustrated, not a mere compilation, but full of original matter of great value, largely drawn from the author's own knowledge.

The last important work in which Lydekker was engaged was a *Catalogue of the Ungulate Mammals in the British Museum*. Of this three volumes have appeared, in the two last of which the author was assisted by Mr. Gilbert Blaine: the completion of the fourth volume occupied the last days of his life, and he succeeded in leaving it ready for the press.

The rapidity with which he worked did not always allow Lydekker to do himself full justice, but, when the vast mass of his output is considered, it will be recognized that he has done far more to advance the knowledge of the living and extinct Vertebrates than is usually accomplished by those whose energies are crippled by the fear of making mistake. No man was ever more ready to place his knowledge at the disposal of others, and many of the younger generation of workers in his field will gratefully remember his help.

In 1883 Mr. Lydekker joined the Geological Society, and was a member of Council for some sixteen years and served as a Vice-President. He was elected a Fellow of the Royal Society in 1894. He received the award of the Wollaston Fund from the Geological Society in 1891, and the Lyell Medal in 1902.

He leaves two sons, Lieut. Gerard O. Lydekker and Lieut. Cyril R. Lydekker, and three daughters.

In addition to the members of his family many scientific men attended the funeral, which took place at Harpenden on April 20. Mr. C. E. Fagan, Dr. S. F. Harmer, Mr. Ogilvie Grant, Mr. J. G. Dollman, Mr. W. P. Pycraft, Dr. C. W. Andrews, Mr. H. Jenkins, Mr. W. G. Chubb, represented the British Museum (Natural History); Mr. Hugh Barclay, the Norwich Museum; and a large and representative body of Naturalists and friends.

¹ Anniversary Geol. Soc. Lond., February 21, 1902.