

and a basis for glacial work all over the country'; his observations on the faunas of the Carboniferous 'Reef-knolls' of the North of England have put on record a wealth of observation and reasoning which will contribute no little to the solution of the problems presented by these remarkable structures; and his researches upon the raised beaches of Gower covered with glacial deposits have extended the area of known Pleistocene movement beyond Yorkshire and Cork."

A Yorkshire geologist writes of him in the *Naturalist* (April, 1917, p. 142): "Mr. R. H. Tiddeman, so well-known and beloved by Yorkshire hammer-men, has passed away. He was a quiet and conscientious worker, and made many firm friends in the county in which he did so much good work."

On his retirement from the Survey in 1902, he took up his residence in Oxford, but he was a frequent attendant at the meetings of the Geological Society in London, and was a member of its Council. He leaves a widow and two daughters.

Mr. Tiddeman was not a voluminous writer, but he contributed to many of the Survey memoirs, maps, and other publications. The Geological Survey memoir *On the Water-supply of Oxfordshire* bears his name. The following papers are also by Mr. Tiddeman:—

1872. "On the Evidence for the Ice-sheet in North Lancashire and adjoining parts of Yorkshire and Westmoreland": *Q.J. Geol. Soc.*, vol. xxviii, pp. 471-91.
1873. "The Older Deposits in the Victoria Cave, Settle, Yorkshire": *GEOL. MAG.*, pp. 11-16.
1894. "Carboniferous Trilobites from the Banks of the Hodder, near Stonyhurst, Lancs.," by Henry Woodward [with "Notes on the Geology", by R. H. T.]: *ibid.*, pp. 481-2.
1900. "On the Age of the Raised Beach of Southern Britain as seen in Gower": *ibid.*, pp. 441-3.
1901. "On the Formation of Reef-knolls": *ibid.*, pp. 20-3.

HARRY PAGE WOODWARD, J.P., F.G.S.,

ASSOC. MEM. INST. C. E.

BORN MAY 16, 1858.

DIED FEBRUARY 7, 1917.

WITH deep regret we received, by the mail of March 31, the announcement of the death on February 7 at Perth, West Australia, of Harry Page Woodward, eldest and sole surviving son of Dr. Henry Woodward, the Editor of this Magazine and for many years Keeper of the Geological Department in the British Museum.

H. P. Woodward was educated at University College School, London, and at the Royal College of Science, South Kensington, where he studied geology under Professor Judd, and field-work with his cousin Mr. Horace B. Woodward, F.R.S., of the Geological Survey of England and Wales. In 1883, upon the recommendation of Sir A. Geikie, K.C.B., and Professor J. W. Judd, C.B., he was appointed Assistant Government Geologist to the Colony of South Australia, where he did valuable work for three and a half years. In 1886 he returned to London and spent a year in the Metallurgical Laboratory

of the Royal College of Science. In December, 1887, he was appointed by the Secretary of State for the Colonies to the post of Government Geologist for Western Australia, where he has ever since resided. In 1895 he resigned his appointment as Government Geologist and entered the service of Messrs. Bewick, Moreing & Co., the Colonial Government conferring upon him the title of Honorary Consulting Geologist and Mining Engineer to the Colony. In 1883 Mr. H. P. Woodward was made a Justice of the Peace for the Colony. In 1897 he severed his connexion with the firm of Bewick, Moreing & Co. and commenced business as a Consulting Mining Engineer in Perth. After eleven years of unofficial geological work in West Australia Mr. Woodward, in 1906, rejoined the Government Geological Survey under Mr. A. Gibb Maitland, a post he continued to hold up to the time of his death, which occurred (after a brief illness) on February 7 last.¹

On December 31, 1890, Mr. Woodward married Ellen Maude, the second daughter of the Hon. J. F. T. Hassell, of Albany; he leaves a widow and three sons, the second of whom has recently joined the Australian Army.

MISCELLANEOUS.

GEOLOGICAL MAP OF CITY OF DUBLIN AREA.

The Ordnance Survey has published, at the price of 3s., a Geological Map of Dublin, on the scale of six inches to one mile, prepared by the Geological Survey of Ireland (Department of Agriculture and Technical Instruction). It extends from Clontarf and Sandymount to Castleknock and Drimnagh, thus including the City, Phoenix Park, and a large residential district. The superficial deposits, boulder-clay, gravels of various types, and materials on the area intaken from the sea, are shown by colours, the underlying limestone rock appearing only in a few rare patches. Hence the map is of special service to architects and engineers, and to all who are concerned with house-sites and town-planning. The topographic basis is identical with Sheet 18 of the Ordnance Survey map of the County of Dublin, and hence a map of the city is provided on a large scale in addition to the geological information. Among the points of interest brought out on the map are the courses of the partially concealed streams that run into the Liffey on the southern side; the great plateau of boulder-clay that masks the old bank of the Liffey in the region of Phoenix Park; and several of the gravel mounds of the Greenhills esker, which have supplied so much material for roads and building purposes. The alterations, partly due to human and partly to marine agency, in the coastline at the west end of Dublin Bay, are well shown by the insertion, in red dotted lines, of the coast, as represented in a map by Bernard de Gomme, published in 1673. The district is described in detail in the illustrated Memoir of the Geological Survey on the country around Dublin (1903; price 3s.).

¹ For a fuller notice of H. P. Woodward's life and work see the *GEOLOGICAL MAGAZINE* for September, 1897, pp. 385-8 (with a portrait).