

(excluding ostriches, penguins, and so on) except the one species which had learned to perch on a fine twig? I am too ignorant to judge or discuss this question, and am conscious that we have touched above on many questions as to which I am culpably ignorant, and seek and expect correction. My object, in thus inviting personal humiliation, has been to ask each biologist whether, in the groups of which he has knowledge, the recognition of cataclasmal selection may not ex-

plain otherwise inexplicable characteristics, as it appears to me to do in the littoral sponges.

- ¹ Described in *Proc. Linn. Soc.* for Mar. 6, 1930: "In the Canopy of the Forest", by Major R. W. G. Hingston.
- ² *Quart. Jour. Micr. Sci.*, 67, p. 298; 1923.
- ³ *Proc. Linn. Soc.* for Feb. 6, 1930.
- ⁴ "Origin of Species" (First Edition), p. 366.
- ⁵ *Loc. cit.* p. 40.
- ⁶ "Forests and Forestry", *Enc. Brit.*, 1910-11, p. 658.
- ⁷ *Proc. Linn. Soc.* for April 18, 1929, p. 53.
- ⁸ *Brit. Assoc. Rep.* (Leeds), 1927, p. 60.
- ⁹ Tillyard: *NATURE*, June 12, 1926; *Trans. Ent. Soc. Lond.*, 76, p. 70; 1928.

Obituary.

DR. JAMES WATERSTON.

THE death of James Waterston, which occurred on April 28, some weeks after a serious operation, is a severe blow to applied no less than to systematic entomology. For many years past Waterston's entomological interests, though largely concerned with the British Mallophaga (bird-lice) and with the Siphonaptera (fleas), had centred chiefly in the, usually minute, Hymenoptera known comprehensively as Chalcidoidea, many of which are of extreme importance as being in the larval state parasitic in caterpillars destructive to crops, in the pests of stored grain, and in other harmful insects such as tsetse-flies.

Born at Paisley on Feb. 7, 1879, Waterston was educated at George Watson's College and the University of Edinburgh, where he graduated, with honours, in divinity, philosophy and science, and afterwards proceeded to his doctorate in the latter subject. After spending some years in the ministry of the Free Church of Scotland, during which he published many papers on ectoparasites, Waterston resigned his living in the Shetlands, and, in April 1914, joined the staff of the Imperial Bureau of Entomology; his interest in and work upon the Chalcidoidea date from this period. In May 1917, after receiving a temporary commission in the R.A.M.C., Waterston was appointed entomologist to the Malaria Commission, Salonica, being afterwards mentioned in dispatches and demobilised after the Armistice with the rank of captain. On May 20, 1920, he left the service of the Imperial Bureau of Entomology and entered that of the Trustees of the British Museum, in which at the time of his death he occupied the position of assistant keeper (first class) in the Department of Entomology.

A good all-round zoologist, capable botanist, and strenuous and enthusiastic worker at the groups of insects which more especially appealed to him, Waterston was also a prolific writer, and, commencing in the year 1903, published no fewer than one hundred and sixty-four entomological papers. While the majority of these more particularly concern the systematist, the list includes pamphlets on fleas and lice (in the British Museum "Economic" series), and a valuable paper on the bionomics of sand-flies (*Phlebotomus*), issued in 1922 as one of the results of his field experience in Macedonia. Among the projects abruptly terminated by Waterston's untimely death is a monograph of the British

Mallophaga, for which a portion of the text and many of the illustrations had already been prepared.

Waterston's wide knowledge was ever at the service of those who sought his aid, and few of those who did so and found him at work at his table in South Kensington can fail to have been struck with his marvellous gifts as a dissector of tiny insects. To see him disarticulate, and display on a microscope slide, the mouth-parts or genitalia of a Chalcid, which itself measured but a millimetre or two in length, was a lesson in technique not easily forgotten.

E. E. AUSTEN.

MR. HUGH S. R. ELLIOT.

By the lamentable aeroplane accident which occurred at Hampton in Middlesex on May 6, an able and popular writer on scientific and philosophical subjects has been removed from our midst at the early age of forty-nine years. Mr. Hugh Samuel Roger Elliot was born on April 3, 1881. His father was the Hon. H. F. H. Elliot, son of the third Earl of Minto; and he himself was a cousin of the present earl. He was educated at Eton and at Trinity College, Cambridge. But his career at Cambridge was cut short through the outbreak of the South African War in 1899, when he obtained a commission in the Coldstream Guards.

On leaving the army in 1902, Mr. Elliot devoted himself largely to scientific and philosophical studies. His first considerable literary undertaking was to edit the two volumes of "The Letters of John Stuart Mill", which appeared in 1910. This piece of work he accomplished with conspicuous care and thoroughness; and his estimate of Mill's character and achievements in the introduction is remarkably just and discerning. Unfortunately, one can scarcely speak in like terms of the book he published two years later, entitled "Modern Science and the Illusions of Professor Bergson". While, no doubt, he did succeed in exhibiting some of the weaknesses of Bergson's philosophy, he had too little patience with Bergson's mode of thought to appreciate its real significance, and his criticism of it was for the most part superficial and ineffective. He was far more at home in the volume he wrote on "Herbert Spencer", which was one of a series edited by Basil Williams and published in 1917. In his younger days he had been a fervent admirer of Spencer; and although, after an interval of fifteen years, he had come to see that much of the 'synthetic

philosophy' was ill-founded and false, the book is an interesting and sympathetic study of Spencer's work and personality. A serious blemish in Spencer's evolution theory seemed to Mr. Elliot to be the assumption of the transmission by heredity of acquired characters, an assumption which he took to be without justification. He had already argued to the same effect in the introduction he wrote to his translation of Lamarck's "Philosophie Zoologique". This translation, which was done with great skill and accuracy, appeared in 1914.

Mr. Elliot had a rooted contempt for what he called 'metaphysics', which he stigmatised as "a maze of sesquipedalian verbiage, beyond the reach of science to defend or to refute". Probably he got his conception of 'metaphysics' from the treatment in "First Principles" of 'the Unknowable', which he regarded as altogether extraneous and unnecessary to Spencer's philosophy as a whole. He himself defended a thorough-going doctrine of materialism, according to which 'physical law' is universally dominant, and mind or consciousness is "only an inert accompaniment of material cerebral changes". In his later volume, "Modern Science and Materialism", which was published in 1919, he was, however, compelled to modify to some extent his earlier view.

Mr. Elliot was a forcible and trenchant writer; his books and essays were always readable, even when they failed to carry conviction. He was happier in expounding scientific theories than in criticising philosophical ones; and his articles on social and political topics were characterised by keen insight and sagacity. His materialistic doctrine is already a spent force; but his survey of Spencer's system and his account of Lamarck's contributions to biology are not likely soon to be forgotten.

G. DAWES HICKS.

DR. P. A. WAGNER.

THE death of Percy Albert Wagner on Nov. 11, 1929, at the early age of forty-four years, removed from a larger sphere than that of South Africa one of the most prominent workers on the economic side of geology. Jointly, the South African School of Mines, Freiberg and Heidelberg, contributed to the determining of his career. Much was accomplished in that relatively short life, principally among the platinum and diamond deposits of the Transvaal, and to a rather less extent in the geology and mineral resources of South-West Africa, for Dr. Wagner seldom strayed in his investigations beyond the southern section of the continent. His Memoirs on the "Fides-Stavoren Tinfields" (1921), on the "Iron Deposits of the Union of South Africa" (1928), and that exceptionally interesting work on "The Pretoria Salt-pan, a Soda Caldera" (1922), are typical examples of the thorough—and also the clear and systematic—manner in which the subject on hand was treated.

The salt-pan formed one of the 'Problems' dealt with in Wagner's presidential address to the Geological Society of South Africa in 1917. An earlier book

on "The Diamond Fields of South Africa", written in 1915 (preceded in 1909 by a volume on the same subject published in Berlin), is still a standard work of reference. "The Platinum Deposits and Mines of South Africa", in which the structure and petrography of the Bushveld Complex receive all but exhaustive treatment, is an outstanding example of the minute care with which he handled his subject, dealing with it, so far as was possible, from every point of view. In describing these sulphide ores, he was in his element.

Appointed Geologist for the Mineral Survey in 1918, Wagner left Government service in 1927 to undertake consulting work, chiefly concerned with platinum and diamonds, finding it necessary to crowd much writing into time which most men would have considered fully occupied with strictly professional matters. In his last memoir for the Geological Survey, that on the "Iron Deposits", he laments that he had only two and a half months for the microscopic work and systematising and summarising the observations of the preceding ten years. "The Platinum Deposits" was written hurriedly, but one looks in vain in either for those "obvious shortcomings" he saw himself in the earlier work. The memoir on "The Geology and Mineral Industry of South-West Africa" (1916) is a most useful compendium of original observations and the publications of other geologists, mostly German, but perhaps the broad outlines of stratigraphical geology were not altogether Wagner's *métier*, though one feels that had his bent led him in this direction, he would have accomplished much.

As his field work was essentially South African, so Dr. Wagner's publications are principally to be found in South African journals. No paper of his appears under the aegis of the Geological Society of London or in the *Transactions* of the Institution of Mining and Metallurgy. This is of small moment; his reputation was world-wide, and even those of his profession who had never met him felt a keen sense of loss at his untimely death.

J. P.

WE regret to announce the following deaths:

Prof. John N. Cobb, dean of the College of Fisheries at the University of Washington, Seattle, a past president of the Pacific Fisheries Society, on Jan. 13, aged sixty-two years.

Mr. G. C. Dudgeon, C.B.E., formerly consulting agriculturist, Ministry of Agriculture, Egypt, well known for his interest in tropical agriculture and entomology, on May 4, aged sixty-two years.

Prof. Stephen A. Forbes, since 1917 chief of the Illinois State Natural History Survey, member of the U.S. National Academy of Sciences and past president of the American Entomological Society and of the Association of Economic Entomologists, on Mar. 13, aged eighty-five years.

Dr. Christine Ladd-Franklin, lecturer in psychology and logic at Columbia University, and originator of the theory of colour vision known by her name, on Mar. 5, aged eighty-two years.

Prof. Max Matthes, director of the University Medical Clinic, Königsberg, one of the secretaries of the German Society for Natural Science and Medicine for the forthcoming meeting in Königsberg, on Mar. 26, aged sixty-five years.