

OBITUARIES

Prof. E. W. MacBride, F.R.S.

By the death of Prof. E. W. MacBride on November 17, within little more than a month of his seventy-fourth birthday, British zoology has lost a vivid and colourful personality and a distinguished worker. To the younger generation he was a member of a remarkable group of zoologists whose encyclopædic knowledge of the morphology of the animal kingdom was a matter of wonder and admiration. His outstanding record as a student shows clearly his capacity for hard work, and his later writings indicate how well he mastered and remembered his subject.

MacBride was born in Belfast on December 12, 1866. His undergraduate training was received at Queen's College, Belfast, and St. John's College, Cambridge, at the latter of which he was exhibitioner and foundation scholar. In 1889 he graduated as B.Sc. of London and two years later obtained his B.A. of Cambridge. Nor were his energies entirely devoted to science, for in his graduating year he was president of the Cambridge Union, an honour that reflects the esteem in which he was held by his fellow students.

After graduating, MacBride went to Naples, where he came under the influence of Anton Dohrn, then at the zenith of his career, and doubtless acquired his deep love for marine zoology. In 1892 he returned to Cambridge to become University demonstrator in animal morphology and in the following year became fellow of St. John's and was the first man to be awarded the Walsingham Medal for biological research. It was doubtless during these years that he laid the foundations of his wide knowledge of zoology, his eminence in which was recognized in 1905 by his election as a fellow of the Royal Society.

In 1897 he was appointed to the Strathcona chair of zoology in McGill University, Montreal, and in this city he met and married in 1902 a daughter of the late H. Chrysler, K.C., of Ottawa. He remained until 1909 at McGill and left a reputation for enthusiasm and energy which persisted for many years. In 1913 he was appointed professor of zoology in the Imperial College of Science and Technology in succession to Adam Sedgwick, and he remained there until he retired in 1934 and carried with him the well-deserved title of emeritus professor. Here he built up a well-known school of zoology that attracted workers from overseas as well as at home. During this time his eminence was recognized by the bestowal of the honorary doctorates of both McGill and Queen's Universities.

Apart from his strictly academic work, MacBride rendered valuable services to his country and to science by his work as chairman of the Council of the Marine Biological Association of the United Kingdom, the Advisory Committee of the Development Commission on Fishery Research and of the Bermuda Committee of the Royal Society. He also served on the Councils of the Royal Society and the Zoological Society, and the work of all these posts was carried

out with the enthusiasm that was so characteristic of him.

His own research ranged over a wide field but his name became particularly associated with the Echinodermata, in the knowledge of which group he became an acknowledged master; and his most noteworthy general contribution to our knowledge of this group was the section on that phylum in the "Cambridge Natural History" volume published in 1906. This was and still remains about the most clear and useful account of the group available to English students. In 1914 he produced vol. 1 (Invertebrata) of the "Text-Book of Embryology" (Macmillan), in which he covered the embryology of the whole of the invertebrates and also the Protochordata in a lucid and comprehensive manner. Here his ability as a teacher is shown better than perhaps anywhere else, for, in spite of his deep knowledge of the Echinoderms, he allots to them no more space than could reasonably be expected, taking into account the relative importance of the phyla in a general scheme and what was then known of their embryology. Apart from the descriptions of the development of selected types of the different organisms, this volume also contains useful and illuminating statements, or discussions of various theoretical points, such, for example, as the biogenetic law, the interpretation of larval forms, etc. It is a definite contribution to the study of invertebrate embryology, not merely a compilation of information, and it needs to be taken into consideration by subsequent workers in this field. MacBride's critical ability also served him well in the selection, from the vast amount of material available, of just those facts that were required to provide a succinct and yet comprehensive review. In 1922 he contributed to the twelfth edition of the "Encyclopædia Britannica" well-known articles on cytology, embryology and eugenics. He also published a series of other works that have been widely read: "Introduction to the Study of Heredity", 1924; "Evolution", 1927; "Embryology", 1929; and "Huxley", 1934.

MacBride's keen mind was not satisfied with the mere accumulation of morphological knowledge, but constantly strove to deduce generalizations from the facts or to see how the current speculations accorded with them. This tendency became more marked in his later works, which, as their titles suggest, are concerned more with the theoretical aspects of biology. In the elaboration of a theory personal opinion plays a greater part than it does, or should do, in the compilation of morphological detail. Some of MacBride's conclusions did not conform with the commonly accepted, one might almost say orthodox, theories; but this did not deter him from putting them forward. He was, for example, generally regarded as the champion in Great Britain of Lamarckism or the heritability of acquired characters, although not in the crude form in which the idea was

originally proposed, and there can be little doubt that this was contrary to the main trend of current opinion. This statement requires some qualification. He did not suggest that all characters were acquired or that all acquired characters were transmitted; but, and this is an important distinction, he did suggest that there was evidence, experimental and other, to show that in certain instances changes induced by external forces in the parent could be handed on to the offspring even if in a modified form. As a corollary there is the possibility that the blind acceptance of the opposite point of view will lead to overlooking or misinterpreting evidence. That these opinions were honestly held no one doubted, and when they were put forward without rancour, with his wide knowledge and his cogency, even if they did not always convince, they certainly caused his opponents to pause and take stock of their position. Such jolts to the complacent acceptance of the orthodox are of considerable value. His ideas were by no means all heterodox, and by his clear exposition of both fact and theory he had considerable influence on contemporary zoological thought in Great Britain.

Although not a large man physically, one had only to be in MacBride's presence for a short while to realize that he had a dynamic personality and a well-stored mind. In meetings and in private discussions, no matter how widely the talk might range over the whole field of zoology, he had always a pertinent contribution to make. He has left a memory of untiring energy and remarkable knowledge, and those bodies and institutions that he served will also recall his loyalty and devotion so freely given.

There is another side to his life, although this is not the place to enlarge upon it. He was devoted to his family and in recent years settled down to a well-earned retirement in Alton, Hampshire. Here he had a delightful garden and was much interested in country life, in the affairs of his locality and in the parish church. To his widow we should like to extend our sincere sympathy.

Dr. F. L. Arnot

News has been received from Sydney, Australia, of the sudden death early in October of Dr. Frederick Latham Arnot, for eight years lecturer in natural philosophy in the University of St. Andrews and, since 1939, lecturer in physics in the University of Sydney. He was born on September 29, 1904, at Sydney, of British parents, his father being Scottish and his mother English. He was educated in his home University, and after graduating with first-class honours in 1927, he was awarded an exhibition at Trinity College, Cambridge, and worked as a research student in the Cavendish Laboratory under the supervision of Sir Ernest Rutherford (later Lord Rutherford). Two years later he was awarded an Isaac Newton studentship, and received the degree of Ph.D. in June, 1930, for investigations concerning the collisions of slow electrons with molecules in gases at low pressures. His later results at Cambridge

on the scattering of electrons in gases and on the diffraction of electrons in mercury vapour were of great beauty and importance.

In 1931, Arnot was appointed to a lectureship in the United College of the University of St. Andrews, and in association with his fellow-workers in the physical laboratory carried out valuable experimental work on ionization in gases and vapours. In these investigations new processes of ion formation were discovered, in particular Arnot's theory of negative ion formation at metal surfaces being of outstanding importance. The results obtained have important bearings on technical problems, and are of interest in connexion with the formation of negative ions in the outer regions of the earth's atmosphere.

In 1939, he was approved for the degree of Sc.D. by the University of Cambridge at an unusually early age. He was offered and accepted a lectureship in physics in the University of Sydney, and in July Dr. and Mrs. Arnot left St. Andrews for Australia. After his arrival he at once set about the organization of research work with the assistance of advanced students, and commenced investigations on nuclear physics and cosmic ray phenomena. Mention should also be made of the great interest which he took in problems of cosmology, and a preliminary account of his views, admittedly of a somewhat speculative character, was published in *NATURE* of June 25, 1938. His many friends in all parts of the world deeply regret the untimely close of a promising career.

H. S. ALLEN.

Prof. Julius Wagner-Jauregg

A BRIEF announcement of the death at the age of eighty-three of Prof. Julius Wagner, Ritter von Jauregg, the eminent Viennese medical man who introduced inoculation of malaria as a treatment for general paralysis, appears in the October 5 issue of the *Schweizerische Medizinische Wochenschrift*.

Like his predecessor Kraft-Ebing (see *NATURE*, August 10, p. 194), he was born at Wels in Upper Austria, on March 7, 1857. He received his medical education at the University of Vienna, where his chief teachers were Stricker, professor of general and experimental pathology, and Leidesdorf, professor of psychiatry. He qualified in 1880 and five years later became lecturer in neurology and psychiatry at his Alma Mater. During 1889-1893 he was extraordinary professor of neurology and psychiatry at Graz, and was then appointed professor in this subject at Vienna, where he remained until his retirement in 1928.

His early work was connected with the treatment of cretinism with thyroid extract, and of goitre with small doses of iodine. His most important achievement, for which he received a Nobel Prize in 1927, was the inoculation of benign tertian malaria for the treatment of general paralysis, which, though not devoid of risk, proved successful in about a third of all cases of this hitherto invariably fatal disease. The same treatment was afterwards applied in tabes. The method had been suggested to him by beneficial effects in various psychoses of pyretogenic substances,