

of the Board of Trustees of *Biological Abstracts*. At Stanford he served as president of the local chapters of Sigma Xi and the American Association of University Professors. He is survived by his wife, Susan Elizabeth (White) DuShane, three daughters, and two brothers.

DAEL WOLFE

Dr. Don E. Eyles

DR. DON E. EYLES died on October 4, 1963, of coronary thrombosis on board ship in Penang, Malaysia, a few hours before he and his family were due to return to the United States. This sudden death of an outstanding scientist and excellent colleague was particularly tragic, as Dr. Eyles was about to retire after twenty-four years' work for the U.S. Public Health Service to join the Lahore (Pakistan) Unit of the Institute of International Medicine of the University of Maryland School of Medicine.

Dr. Eyles was born in 1915 in Atlanta, Georgia, and obtained his M.S. (Biology) at Emory University and his Sc.D. at the Johns Hopkins University in Baltimore.

During the early period of his academic life he was interested in ornithology and medical entomology, but later much of his work was connected with investigations on malaria imported into the United States by returning Service-men, and with curative action of drugs against relapsing malaria infections. The difference between the effect of pyrimethamine and primaquine on the tissue forms of malaria parasites became clear as a result of this work. The curative action of pyrimethamine and sulphadiazine, and the synergistic effect of these drugs in toxoplasmosis, were reported by Eyles *et al.* in 1952, and these findings were promptly confirmed in acute and chronic forms of the disease. Much knowledge of the epidemiology of toxoplasmosis was due to the work of Eyles on the relationship between the infection in domestic animals and its transmission to man.

In 1960 Dr. Eyles, taking a clue from his accidental laboratory infection, showed that *Plasmodium cynomolgi bastianellii* of monkeys can be transmitted to man through a mosquito. This started much new and still expanding research on the possibility of simian malaria as an anthrozoosis.

In 1961 Dr. Eyles was given the task of establishing a research unit of the U.S. Public Health Service in Malaya and he went to the Far East accompanied by his wife and three children. The research unit was set up at the Institute for Medical Research in Kuala Lumpur and within less than three years Eyles and his Malaysian, American, British and Australian colleagues produced a remarkable series of investigations which have greatly extended our knowledge of simian malaria. Five new species of malaria parasites of Malaysian monkeys and of a moose-deer were discovered and their relationship to a number of anopheline vectors was established.

A new area for further research of considerable fundamental and practical importance was thus opened in a field that until recently seemed to be uninspiring and well-trodden. The impetus given in this way to the investigation of simian malaria was characteristic of Eyles's vision, determination, leadership and phenomenal energy. During the past year Eyles was greatly interested in the problem of resistance of human plasmodia to synthetic drugs and particularly 4-aminoquinolines. He left a number of papers which are now awaiting publication.

Some of us who saw Eyles in September at the International Congresses of Tropical Medicine in Rio de Janeiro and who heard his summary of the work carried out in Malaya could not help saying that he seemed to be in a hurry to complete one job to start another. He was in a hurry, indeed, for his "appointment in Penang".

Eyles's work resulted in more than a hundred publications. He has demonstrated his qualities as an administrator of a research laboratory and his brilliance and

versatility as an investigator of general and specific problems in parasitology. One of Eyles's most important assets was his ability to work with a team; he has undoubtedly stimulated in others as much research as he has been personally responsible for. His proficiency in experimental work in parasitology was equalled by his general knowledge of ornithology, botany and entomology. He was an intensely live individual—an inveterate collector of almost anything, biological or otherwise—universally liked and admired by those who have had the good fortune to know him during his short, happy and fruitful life.

L. J. BRUCE-CHWATT

Mr. Douglas P. R. Petrie

DOUGLAS PETRIE died at his home suddenly on October 13, aged fifty-two. He was born in Australia, graduated in Melbourne in 1931 in physics, took his M.Sc. under the late Prof. Laby two years later, having worked on X-ray vacuum spectroscopy and on this gained an 1851 Exhibition Overseas Scholarship which he held in the Cavendish Laboratory. Here he worked with Dr. M. L. E. (now Sir Mark) Oliphant, developing the electron optics for a hydrogen ion gun and for a very high voltage discharge tube, one of the first essays in electrostatic focusing to be performed on ion accelerators. He was awarded the M.Sc. for this work.

In October 1937, he joined the research staff of the Valve Department of Standard Telephones and Cables, Ltd. Like most of this staff, he was soon brought into the development of decimetre- and centimetre-wave oscillators for airborne radar sets and worked on this throughout the War. Petrie's great physical and mathematical skill played an extremely important part in the development of practical continuous-wave oscillators for various wave-lengths from 6–20 cm which were used for a variety of operational and instrumental purposes. The development of these required much detailed calculation of the distribution of high-frequency electric fields. He discovered and proved a new theorem in electrostatics, which made it possible to replace intelligent guessing by accurate quantitative design.

Little of his war-time work could be published at the time it was performed, but at the end of the War he collaborated with other members of the team to write a major paper on the principles of velocity-modulation which received the Institution of Electrical Engineers Radio Section premium award for 1946–47.

After the War he joined the Associated Electrical Industries Research Laboratory as a section leader, jointly with Dr. D. R. Chick, to develop the Company's interests in nuclear physics, and together they were responsible for designing and constructing a 4-MeV electrostatic generator operating under high gas pressure, it being the Company's intention to exploit the patents of Dr. van de Graaff in Great Britain under licence. The construction and use of the machine served to train the first generation of scientists in Associated Electrical Industries for the coming nuclear power developments, but in addition very many new ideas were incorporated into this machine, in particular, Petrie's experience of ion focusing. Before the idea of tandem generators had been developed, Petrie and Dr. Chick in 1948 began the investigation of a helical slow-wave structure to accelerate ions emerging from the van de Graaff generator then being built, and, with others, he designed and constructed a pilot length of 1 metre, into which 2.5-MeV protons were injected and accelerated successfully to 4 MeV. This would certainly have been continued but for the proved success of the tandem generator, the first of which to be built by the Associated Electrical Industries incorporated a number of significant improvements due to Petrie.

Petrie then turned to electron optics and took charge of the Section dealing with this subject. He developed

the lens designs for a one-million-volt electron microscope which might have given a resolving power of 1–2 Å and worked out the theories of quadruple and octuple systems for correcting spherical aberration; he set up an experimental electron-optical bench for the measurement and correction of spherical aberration and devised computer programmes to solve related problems. His great mathematical ability coupled with a keen physical insight kept his work in the forefront of what was required by

the industry, and he keenly wanted to join the engineering team responsible for instruments based on electron optics.

He was of a quiet disposition, and thought deeply before he spoke; his pronouncements were always appreciated by his colleagues and staff. In earlier life he had composed music which had been played in public, and he was a good tennis player.

He leaves a widow and one son.

T. E. ALLIBONE

NEWS and VIEWS

The Royal Society Awards: Royal Medals

H.M. THE QUEEN has approved recommendations made by the Council of the Royal Society for the award of the two Royal Medals for 1963 as follows: to Prof. H. H. Read, emeritus professor of geology in the University of London and Senior Research Fellow in geology, Imperial College of Science and Technology, London, for his outstanding contributions to the understanding of the processes of rock metamorphism and the origins of granite; to Dr. Robert Hill, member of the staff of the Agricultural Research Council, for his distinguished work in the biochemistry of plants, especially for his contributions to knowledge of photosynthesis.

Mathematics in the University of Warwick :

Dr. E. C. Zeeman

DR. E. C. ZEEMAN, whose appointment to the chair of mathematics in the new University of Warwick has recently been announced, has, since the War, been one of the leaders of the school of topology in Cambridge, where he is a University lecturer in mathematics and a Fellow of Gonville and Caius College. His work has been mainly in the geometrical theory of manifolds and he has taken a leading part in the recent revival of purely combinatorial methods in this subject. He had a large share in the work which led to the proof two years ago of the Poincaré hypothesis for spaces of dimension 5 and upward, a famous conjecture which had been outstanding for many years in spite of many attempts on it. He has also recently put forward an interesting theory of the functioning of the brain, and especially of the processes of vision, based on concepts taken from those of general topology. Dr. Zeeman's loss is bound to be keenly felt in Cambridge, where he is the centre of an active research group. He will have the good wishes of all for his success in building a new school at Warwick.

Inorganic Chemistry at Monash University :

Prof. B. O. West

DR. B. O. WEST has been appointed to the newly established chair of inorganic chemistry at Monash University. Dr. West, who was born in 1928, was educated at Adelaide Boys High School and the University of Adelaide. After graduating with honours in physical and inorganic chemistry in 1949, he joined the staff of the Chemistry Department of the University of Adelaide, where he held the positions of demonstrator, lecturer and senior lecturer and was, in 1962, appointed reader in inorganic chemistry. During this period, in 1953–54, he spent two years at the University of Cambridge, where he held a Rhondda research studentship at Gonville and Caius College, and worked in the inorganic chemistry research laboratories. Dr. West's main research interest has been in the chemistry of co-ordination compounds and he has made significant contributions to our knowledge of the preparation and reactions of the inner complexes. More recently, he has also become interested in the chemistry of organometallic compounds and has developed new methods for the synthesis of compounds

containing both fluoroalkyl and alkyl or aryl groupings attached to the same element.

Bio-Engineering at the Royal College of Science and Technology, Glasgow

THE Council of the Royal College of Science and Technology has announced the formation of a Bio-Engineering Unit within the Department of Mechanical Engineering; Dr. R. M. Kenedi has been appointed research professor, as from October 1, 1963. Work in this field first commenced in the Department of Mechanical Engineering in the College some six years ago with experimental studies of skin tension in the human body and with the application of refrigeration techniques in hypothermia. Since then, the Department's research activity in this field has greatly intensified in close co-operation with Glasgow's teaching hospitals. Co-operation takes the form of direct collaboration between surgeons, physicians and engineers, working as combined teams in the College engineering laboratories, the hospital wards and operating theatres and the various medical research departments as required. Thus the medical side is allowed every opportunity to become familiar with the available relevant engineering techniques, while the engineers are taken directly into the hospitals to become fully acquainted with particular medical problems under consideration in relation to the human patient. The Unit will be administered by the Department of Mechanical Engineering in the College in association with a Steering Committee. The primary duty of the Steering Committee will be to screen the projects put forward for investigation and to authorize work on such as seem suitable and practicable.

Dr. R. M. Kenedi

DR. R. M. KENEDI graduated B.Sc. with honours in civil engineering at the University of Glasgow in 1941, and was awarded the degree of Ph.D. (Glasgow) in 1947. He was awarded the honorary degree of C.H. of the National University of Engineering, Lima, Peru, in 1958, and is an Associate Member of the Institution of Mechanical Engineers and an Associate Fellow of the Royal Aeronautical Society. He joined the staff of the College in the Department of Civil and Mechanical Engineering in 1941 and was appointed to a senior lectureship in 1947. He became reader in strength of materials in 1956, a post which he has held until his present appointment. In addition to his academic duties, Dr. Kenedi has pursued a wide range of research interests, many connected with industrial problems. In 1957 he carried out a two-month tour of universities and industrial research centres in the United States, surveying current research on cold-forming processes and products for the Cold Rolled Sections Association, and in 1958, as a result of a joint invitation from the Universidad Nacional de Ingenieria, Lima, and the British Council, he spent some six weeks in Peru, lecturing and advising on the contents of engineering courses and on the planning of a materials testing laboratory. Dr. Kenedi was born in Hungary and became a naturalized British subject in 1947.