

enable SADTC to promote integrated air defence for Nato. Mr. Whelpton is a Fellow of the Institute of Physics and he has published a number of papers, two of which have been awarded premiums by the Institution of Electrical Engineers.

Ministry of Supply : Mr. J. H. Phillips

MR. J. H. PHILLIPS has been promoted to deputy chief scientific officer and appointed to the headquarters post of director of Guided Weapons (Techniques). In this post he will be responsible for directing research and development on guidance and control techniques, advanced engineering techniques specially applicable to guided weapons and on propulsion. His career as a scientist has been almost entirely in the Government service. After taking an honours degree in physics at the University of London in 1937, Mr. Phillips worked throughout the Second World War on radio and radar problems, first at Bawdsey Manor and later at the Telecommunications Research Establishments at Swanage and Malvern. This was followed by a two-year term as guided weapons liaison officer in the British Supply Mission (now British Joint Services Mission) in Washington. Moving then to the Royal Aircraft Establishment, Farnborough, he worked for four years in the Guided Weapons Department at the most formative period of this new activity. Thence he was transferred to the headquarters staff of the Ministry of Supply on similar work, and for the past two years has been serving as head of the guided weapons group in the British Joint Services Mission, Washington.

Communication Principles at the Bell Telephone Laboratories : Prof. J. W. Tukey

PROF. J. W. TUKEY, professor of mathematics at Princeton University and a member of the mathematical research department of the Bell Telephone Laboratories, has been appointed assistant director of research in communications principles at those Laboratories. Prof. Tukey will continue to occupy the chair of mathematics at Princeton, a post he has held since 1950.

A native of New Bedford, Massachusetts, Prof. Tukey graduated in chemistry from Brown University in 1936 and was awarded the degree of Ph.D. by Princeton University in 1939. He joined the technical staff of the Bell Laboratories in 1945. His work has covered development of new statistical techniques; broad analysis and synthesis problems related to complex weapons systems; and other problems with mathematical or statistical aspects. He was a Jacobus Fellow at Princeton in 1938-39, a Fellow of the John Simon Guggenheim Memorial Foundation in 1949-50, and a Fellow at the Center for Advanced Study in the Behavioral Sciences in 1957-58. Prof. Tukey is a member of the Division of Mathematics of the National Research Council and serves on several of the Council's committees, including the Committee on Atmospheric Sciences and the Committee on Behavioral Sciences. He has also served on a number of advisory committees to the United States Government, frequently in connexion with military problems.

Zoology at University College, Canberra : Prof. J. D. Smyth

THE news of Prof. J. D. Smyth's appointment to the chair of zoology in the newly established Science

Faculty in University College, Canberra, has been received with mixed feeling by Irish zoologists. A Dublin man and a graduate of the University of Dublin, he has spent the greater part of his academic life in his Alma Mater. In 1948, he returned to Dublin when he was made a Fellow of Trinity College and lecturer in zoology. In 1954, he became a professor of experimental zoology. Prior to his return to Dublin, Dr. Smyth held appointments in the Universities of Leicester and Leeds. Prof. Smyth is known to physiologists and parasitologists alike through his research on the physiology of tapeworms. This work chiefly concerns the culturing of the Pseudophyllidae *in vitro*. His technique permits the aseptic removal of the plerocercoid larvæ from the body cavity of fish and their cultivation in various media. By raising the temperature to 40° C., he induced the plerocercoid to mature and reproduce. One interesting result of his work indicates that development, as far as oviposition, depends on some bacterial by-product in the medium. Work on *Ligula intestinalis* has yielded fertile eggs which hatched into normal coracidia, proving a much-debated point that the tapeworm is self-fertile. Using a similar technique, Smyth also succeeded in showing that *Schistocephalis solidus* produced *in vitro* eggs capable of up to 85 per cent embryonation. Dublin has just conferred the degree of Sc.D. on Prof. Smyth—a fitting distinction and well earned. To him, his wife (Mildred Moore, also a graduate in zoology of the University of Dublin) and his two sons, his friends wish many happy years in the country of their adoption.

H. J. Hamburger (1859-1924)

THE distinguished Dutch physiological chemist, Hartog Jakob Hamburger, was born at Alkmaar a century ago on March 9, 1859. He studied chemistry at the University of Utrecht and, after obtaining his doctorate in science, served for seven years as assistant in physiological chemistry to Franz Cornelis Donders. Having graduated M.D., he became lecturer in physiology and pathology at the Utrecht Veterinary School in 1888, and in 1901 he was elected to the chair of physiology at Groningen, where ten years later he was responsible for creating a magnificent new institute. He was president of the International Physiological Congress held at Groningen in September 1913 on the occasion of the twenty-fifth anniversary of its foundation.

A skilled designer of ingenious and deceptively simple experiments and a tolerant and kindly man, Hamburger is remembered eponymously for his 'phenomenon' (the chloride shift); his 'interchange', also called 'secondary buffering'; and his 'law', which states that, when blood is rendered acid, albumins and phosphates pass from the red blood corpuscles to the serum and the chlorides pass from the serum to the cells, and that the reverse occurs when the blood is rendered alkaline. As early as 1867 Nathan Zuntz had suggested that carbon dioxide is carried in the plasma by virtue of some substance present in the red blood corpuscles. It was Hamburger who furnished the final proof of this theory. Hamburger's best-known book is entitled "Osmotischer Druck und Ionenlehre in den medizinischen Wissenschaften" (three vols., Wiesbaden, 1902-4). He also contributed to our knowledge of calcium ions in phagocytosis and of næmolysis. A member of the Royal Academy of Amsterdam and recipient of many honorary degrees,