

THE LIFE AND PHILOSOPHY OF ALMROTH WRIGHT

Almroth Wright : Provocative Doctor and Thinker
By Dr. Leonard Colebrook. Pp. xi+286+10 plates.
(London: William Heinemann (Medical Books),
Ltd., 1954.) 21s. net.

Alethotropic Logic : a Posthumous Work

By Sir Almroth E. Wright. Presented by Giles J. Romanes. Pp. xvi+346+4 plates. (London: William Heinemann, Ltd., 1953.) 25s. net.

THE task of writing a life of Sir Almroth Wright has been well discharged by Dr. Leonard Colebrook, his pupil and collaborator for many years. Wright was half Irish and half Swedish, and laid the foundations of his remarkable career as scientist, writer and philosopher by reading languages and law as well as medicine, and by an apprenticeship in experimental physiology and pathology before he became a bacteriologist.

Wright's greatest achievement was one of his earliest, the introduction of typhoid vaccine and his campaign for its adoption by the Army. He developed a series of ingenious techniques for studying the activity of leucocytes and the body's response to bacterial infection. An early result of these studies was the discovery of opsonin; another was the formulation of views about the treatment of war wounds in 1914-18 which brought him into violent collision with the President of the Royal College of Surgeons. In this polemic he was deservedly described as a "savagely controversialist". Of his advocacy of vaccines in the treatment, as distinct from the prevention, of infection, and of his later views on some aspects of immunity, little has survived in the belief and practice of the present day. Of the extensive vocabulary he coined, only two words, opsonin and prophylaxis, have come into general use. His techniques have been little copied, and the method of experiment in the whole animal has been preferred to those he devised employing only living blood *in vitro*. As Dr. Colebrook frequently points out, Wright's many ideas may yet bear fruit, or might have done so but for the revolution which has taken place in the treatment of bacterial infections. Chemotherapy has removed much of the need for other methods which he was trying to develop.

Wright was an innovator to whom progress in his science perhaps owes most because he was "provocative" of enterprise among both his associates and his opponents. His remarkable personal qualities secured him many friends and much influence outside his profession; Bernard Shaw, for example, although contemptuous of orthodox medicine and disbelieving most of the doctrines on which Wright's work was based, had apparently a profound respect for him. The relations between these two men are well described, as indeed is all the more personal side of his life. This is a thoroughly readable and enjoyable biography, and from the scientific point of view it will be valued as a clear and simple account of a series of investigations which are not easy to follow in the original papers.

Wright's grandson, Dr. G. J. Romanes, his secretary, and four other colleagues and friends have collaborated in editing his last written work. "Alethotropic Logic" is an analysis of some of the workings of the human mind, and as such must be judged by psychologists and logicians. Its theme is the search for truth, and the basis on which truth should be

accepted: the main argument can be shortly stated by the proposition that emotions are no basis for belief. Christian dogma is severely castigated in many places, as is the feminine mind, and, in Chapter 19, the orthodox statistical method in medicine. There are entertaining chapters or appendixes on the technique of writing, the defects of dictionaries, pictorial art, the relative degrees of intelligence of dogs and bitches, and some of the author's practical inventions. He employs many new words, mainly, like the adjective in the title, of Greek derivation: these are defined in a glossary. There are frequent quotations from a great variety of sources in five languages, admirably illustrating the argument and often epigrammatic. The book can be browsed in profitably for their sake alone, and it has the merit (itself dependent on the defect that this is a rather miscellaneous compilation) of presenting a more complete picture of the author than any other single work he wrote. One thing remains obscure. His favourite saying was: "God offers to every mind its choice between Truth and Repose". What God did he mean? Neither his own book nor his biographer's answers this question.

L. P. GARROD

ROTATING LIQUID MASSES

The Stability of Rotating Liquid Masses

By Dr. R. A. Lyttleton. Pp. vii+150. (Cambridge: At the University Press, 1953.) 35s. net.

A GIVEN mass of uniform incompressible liquid, acted upon by its own gravitation and no external forces, possesses only one configuration of equilibrium relative to a Newtonian frame of reference, and this configuration is a sphere. If the liquid is rotating relative to such a frame, with given angular momentum H , then, relative to a frame rotating with the liquid, there is a spheroidal configuration of equilibrium, a 'Maclaurin spheroid'. If H exceeds a certain critical value H_0 , there is another configuration of relative equilibrium, a 'Jacobi ellipsoid'. If H does not exceed a certain further critical value H_1 ($>H_0$), there is still another equilibrium configuration which, when H_1-H is sufficiently small, is the 'pear-shaped' configuration discovered by Poincaré. When H is not too small, there are also configurations in which the liquid forms two bodies in equilibrium relative to a rotating frame; it used to be thought that, for continuously varying H , the series of pear-shaped figures would be continuous with a series of such binary configurations.

Dr. R. A. Lyttleton's book is an account of the theory of the stability, with respect to arbitrary small disturbances, of the various (single-body) configurations. Two sorts of stability have to be considered, 'ordinary' and 'secular', the latter being relevant if there is any internal friction (viscosity) no matter how small. Although the existence of these two sorts is familiar in ordinary dynamics—for example, in the theory of a spinning top—there are pitfalls into which even the most eminent of previous writers on the present subject have stumbled. Dr. Lyttleton starts with an exceedingly lucid exposition of the theory of stability of a general dynamical system; this should be noted by all applied mathematicians, whether or not they are interested in the present applications.

The classical investigations of the problems treated are those of Poincaré, G. H. Darwin, Jeans,