

NEWS and VIEWS

Nobel Prize for Physiology and Medicine for 1949

THE Nobel Prize for Physiology and Medicine for 1949 has been awarded jointly to Prof. Walter Rudolf Hess, of Zurich, and Prof. Antonio Egas Moniz, of Lisbon.

Prof. W. R. Hess

PROF. HESS is professor of physiology in the University of Zurich. Thanks to his exceptional ability, Hess, originally a school teacher, obtained medical qualifications and adopted an academic career. His great energy and far-sightedness were responsible for the establishment of the High Altitude Research Station of the Jungfrauoch. This project met a long-felt need of scientific workers and was realized in 1931 with the help of an international foundation of which the Royal Society is a member. The earliest of Hess's physiological researches to attract widespread notice was his clear statement of the principles of autonomic nerve function. The medical world of the Continent owes to him the recognition of the 'ergotropic', power-increasing action of sympathetic nerve impulses, and the energy-saving or 'histotropic' action of parasympathetic stimulation promoting cell growth and repair. So early as 1925 he developed the technique which he has continued to use for investigating the function of individual regions of the brain. The method is to introduce needle electrodes into the brain of a cat and to stimulate very localized areas through these electrodes. The animals survive very well; special means are used for leading in the stimulating current, so that the animals can move freely. Motor effects of the stimulation are recorded cinematographically and analysed with the help of the film record. The brain tissue between the electrodes is then destroyed by electrocoagulation. The resulting disturbances, together with the effects of stimulation, allow conclusions to be drawn on the functions of the part of the brain concerned. The latter is identified with certainty by making histological preparations, plotted as an atlas of brain function. Last year Hess published a monograph which clearly outlines his conclusions on the relation of the diencephalon to motor activity. By these systematic and important researches, covering almost twenty-five years of tireless work, Prof. Hess has richly deserved the present award.

Prof. A. E. Moniz

PROF. MONIZ is a most distinguished neuro-surgeon whose international fame rests on two contributions to medical practice especially. Between 1927 and 1937 he introduced and developed cerebral angiography as a method of diagnosis of intracranial disease. All the essentials of the method at present in occasional use for neuro-surgical clinics are due to him. He published in 1936 a monograph on the operative treatment of certain psychoses, which described the operation of prefrontal leucotomy and the impressive results of its application to twenty cases of psychosis. Imagination, boldness and skill were necessary to demonstrate, as he did, the feasibility of the injection of radio-opaque substances into the internal carotid artery, and of the operative destruction of the white matter of the prefrontal lobes. He has described in his monograph how he came to devise leucotomy. He had noted how little the extensive removals of brain tissue by Brickner

and Clovis Vincent had impaired social behaviour, and had considered the possibility of lesser removals of brain substance as a means of reversing the rigid functioning of groups of brain cells, which he thought to be responsible for the persistence in psychosis of painful ideas. The impetus to the first attempt came in London in August 1935, when he heard Jacobsen's description of his work with Fulton on the effects of frontal ablations on the so-called neurotic behaviour of chimpanzees. Assisted by Dr. Almeida Lima, he then perfected the technique of leucotomy within a few months.

Although leucotomy is applicable in fewer cases and is more drastic than either insulin comas or electroplexy, the two other innovations which have recently revolutionized the treatment of mental disorders, the work of Prof. Moniz has exerted at least as important an influence, because he directed the attention of neuro-surgeons to psychiatric problems. The procedure which he devised may eventually be superseded; but the lesson which he has taught will not quickly be forgotten, for, with the neuro-surgeons who have followed him, he has played a large part in reviving in psychiatry a tradition of courageous and energetic treatment, and has demonstrated that skilful intervention may yield a degree of success even in the most serious and advanced cases of psychosis.

Botany at Trinity College, Dublin:

Prof. H. H. Dixon, F.R.S.

PROF. H. H. DIXON, professor of botany in Trinity College, Dublin, retires at the end of this year. Prof. Dixon turned from a training as a scholar in classics at Trinity College, Dublin, to the field of plant physiology, which he studied with Strasburger in Bonn. He was then associated with the physicist, Dr. J. Joly, who became his intimate and life-long friend. Together they worked out and published the cohesion theory of the ascent of sap (1894): the mechanistic explanation of the transpiration stream which replaced older vitalistic theories. Dixon devoted the following decades to elaborating and establishing this theory by ingenious experiments in the wide field of physiology concerning the water-relations of plants. Apart from this, he did valuable work in connexion with the transport of metabolic materials and so forth. He became professor of botany in 1904, and from that time has made his laboratory the centre of active teaching and physiological research. He became a fellow of the Royal Society in 1908.

Dr. D. A. Webb

PROF. DIXON'S successor is Dr. D. A. Webb, a scholar of equally wide cultural interests. After graduation at Trinity College, Dublin, he went to Trinity College, Cambridge, where he obtained the degree of Ph.D. for a thesis on the "Distribution of Metals in the Tissues of Marine Animals". This biochemical and zoological research at the outset of his career gave place to experimental and field research in botany when he returned to Dublin as lecturer in Dixon's department. He published a students' Flora of Ireland, and initiated important research work upon the calcicole habit, upon the ecology of areas of western Ireland, and upon the critical taxonomy of certain groups of flowering plants such as the dactyloid saxifrages. He was joint organiser of the very successful International Phytogeographic Excursion to Eire this year.