from aircraft cannon fire. 'Plastic armour' consisted of a tightly packed mass of stone particles held together by a bituminous mortar and backed by a steel plate; 'plastic protective plating' was an even denser material with a higher stone content compacted by vibration and encased in thin sheet steel. In essence, these devices provided a protective layer, the resistance of which to penetration was highly irregular, thus causing projectiles to yaw away from a straight path.

Mr. Waters joined the Bituminous Section of the Road Research Laboratory in 1936: at the time of his death he was in charge of the Laboratory's Scottish branch at East Kilbride. His colleagues will long remember his originality of mind, enlivened always by gaiety and wit.

Dr. Ernst Wanner

Dr. ERNST WANNER was born in Zurich on July 22, 1900. In 1925, he was awarded the degree of doctor of mathematics at Zurich for work on groups of linear transformations, and in 1928 was appointed to the Swiss Meteorological Service, where he remained until his death from a heart attack on November 4, 1955.

He worked on magnetic variations at Regensburg and on seismology at Zurich. Latterly he was vice-director of the Swiss Meteorological Service and responsible for personnel. That he was successful in both these fields is a tribute to him both as a scientist and as a man. He was basically good-natured, modest and very straightforward.

With A. Kreis, Wanner constructed a 1,000-kgm. vertical seismograph, which assisted him in obtaining data for the study of Swiss earthquakes and their impact on Alpine structure. He also studied Swiss earthquakes historically, compiling a catalogue of shocks between the dates 1856 and 1879. With all this material he was able to work out the correlation between earthquake epicentres in Switzerland and Swiss Tertiary volcanics and thermal springs. He used a method due to G. Polya and F. Eggenberger on the coupling of earthquake aftershocks. Finally, with P. L. Mercanton, Wanner studied the magnetic anomaly in Jorat, near Lausanne.

Wanner was president of the Swiss Committee of the International Union of Geodesy and Geophysics, vice-president of the International Association of Seismology and the Physics of the Earth's Interior, and the Swiss representative on the European Seismological Commission. He was unmarried.

ERNEST TILLOTSON

NEW FELLOWS OF THE ROYAL SOCIETY

AT the meeting of the Royal Society on March 15, the following were elected to fellowship:

DR. N. P. ALLEN, superintendent, Metallurgy Division, National Physical Laboratory, Teddington, Middlesex, distinguished for his work on alloy steels, their transformations, and their engineering properties

PROF. J. F. BAKER, professor of mechanical sciences, University of Cambridge, distinguished both for his experimental and theoretical investigations of steel structures and for services to education in engineering.

PROF. R. M. BARRER, professor of chemistry, Imperial College of Science and Technology, London, distinguished for his work on the mechanism of adsorption and diffusion of gases in solids and the problem of molecular sieves in zeolite minerals.

DR. R. BROWN, head of the Agricultural Research Council Unit of Plant Cell Physiology, Oxford, distinguished for his work on germination of parasitic seeds and isolation of germination hormones, also for studies of factors involved in cell division and development.

PROF. J. A. V. BUTLER, professor of physical chemistry, University of London, distinguished for his work on thermodynamics, and the application of physical techniques for the solution of problems of molecular structure of deoxyribonucleic acids.

DR. D. GABOR, Mullard reader in electronics, Imperial College of Science and Technology, London, distinguished for his work on transient electric phenomena, electron microscopy, the theory of communication and the electric arc plasma.

DR. H. GRÜNEBERG, reader in genetics, University of London, distinguished for his investigations into the expression of genes during development in mammals.

DR. C. S. HALLPIKE, director, Otolological Research Unit of the Medical Research Council, London, distinguished for his investigations of the physiology and pathology of the internal ear and the mechanisms of hearing and equilibration.

PROF. J. E. HARRIS, professor of zoology, University of Bristol, distinguished for his researches in several branches of experimental zoology.

W. K. HAYMAN, reader in analysis, University of Exeter, distinguished for his contributions to the theory of functions of a complex variable.

PROF. N. KEMMER, Tait professor of natural philosophy, University of Edinburgh, distinguished for his pioneering work on the fundamental particles of physics, particularly on the meson and its role in determining forces within the atomic nucleus.

DR. N. KURTJ, lecturer and demonstrator in physics, University of Oxford, and Senior Research Fellow, Brasenose College, distinguished for his work on phenomena at very low temperatures, particularly in paramagnetism and nuclear alignment.

DR. R. G. MACFARLANE, Radcliffe lecturer in haematology, University of Oxford, distinguished for his studies on blood coagulation and their application for the treatment of haemophilia.

DR. R. MARKHAM, principal scientific officer, Plant Virus Research Unit (Agricultural Research Council), Cambridge, distinguished for his studies on plant viruses and for his contributions to knowledge of nucleic acids.

DR. J. W. MITCHELL, reader in physics, University of Bristol, distinguished for his work on the action of light on crystals, particularly in photographic emulsions, and on the nature of the photographic latent image.