

a foreign member of many European academies (including the Institut de France, the Lincei and the Pontifical Academy) and mathematical societies, and an Officier de la Legion d'honneur. His last years were gladdened by the knowledge that his brilliant son Garrett was steadily advancing towards a position in the world of mathematics not inferior to his own.

E. T. WHITTAKER.

### Dr. O. F. Bloch

OLAF BLOCH was a man of remarkable energy largely applied to the progress of photographic science and in furthering the application of photography as a tool in many branches of science and technology. He received his earliest scientific training at the Finsbury Technical Institute under Prof. H. E. Armstrong, and having spent some years in the Davy Faraday Laboratory and in chemical manufacture, he joined the staff of Ilford, Ltd., in 1910. Little can be written of his very successful work over many years to produce improved light-sensitive materials, for much of it was made known only to his closest associates and publication in this field is rare; but mention may be made of important work with F. F. Renwick on the optical properties of photographic layers, and early attempts, with Miss F. M. Hamer, to relate the chemical structure of cyanine dyes with their sensitizing properties.

As secretary of the Scientific and Technical Group of the Royal Photographic Society in the years following the War of 1914-18, Bloch took a leading part in organizing an attack on the problem of the sensitometric testing of photographic materials, leading to recommendations to the Sixth International Congress of Photography in Paris in 1925.

Bloch became chief chemist of Ilford, Ltd., in 1930, and his devoted work for the Royal Photographic Society was recognized by his election to the presidency in the following year. His ready wit and wide knowledge made him a most popular lecturer, and he addressed many of the learned societies in Great Britain. He will be particularly remembered for his accounts of the many applications of infra-red photography, just then made really practicable by the

discovery and application of thiatricarboyanines. Later he turned to demonstrating the importance of photography as an indispensable tool in many branches of science and industry, and in these lectures Bloch referred always to his conviction that photography is grossly neglected by British universities as a subject for teaching and research. The foundation of a chair of photographic science at a university in Britain was a cause very dear to him, so that he found particular pleasure in helping academic scientific workers in their photographic problems. Thus by collaboration with Dr. F. W. Aston he produced plates especially designed for recording atomic particles of low penetration, and these were used in the classical investigation of isotopes. A range of materials of special characteristics and spectral sensitivities was prepared for use in astronomy and related sciences. More recently, Bloch eagerly accepted opportunities to collaborate with atomic physicists to evolve photographic emulsion layers of value in recording tracks produced by penetrating atomic particles.

These and other services to scientific investigation were recognized by the University of Aberdeen by the award of the honorary degree of LL.D. He received the Progress Medal of the Royal Photographic Society, and, appropriately, was chosen to preside at the commemoration of the centenary of photography at the Royal Society of Arts in 1939.

Away from his work, Bloch had a remarkable range of interests; he was deeply appreciative of literature and the arts, and was a keen gardener with an encyclopaedic knowledge of garden plants. Taking up alpine mountaineering with characteristic enthusiasm when more than fifty years old, he qualified for membership of the Alpine Club. He died on October 19 at the age of seventy-two years.

C. WALLER.

WE regret to announce the following deaths:

Sir John Fox, C.B., O.B.E., F.R.S., Government chemist, on November 28, aged seventy.

Sir Percy Nunn, first director of the Institute of Education, University of London, on December 12, aged seventy-four.

## NEWS and VIEWS

### Ethics of Scientific Investigation

IN his address "Human Nature in Science" to the Section on Geology and Geography of the American Association for the Advancement of Science, delivered at Cleveland on September 13, 1944 (*Science*, 100, 299; 1944), Dr. J. K. Wright gave a highly stimulating discussion of some relations between human nature and science as they might be set forth in such a manual for science as Macchiavelli wrote for princes. Analysing first the personal qualities that influence scientific research, especially originality, open-mindedness, precision and scientific consciousness or the ability to discriminate between motives, Dr. Wright indicates the dangers which may attend excess of any one of these qualities. He surveyed next the motives for scientific research; these are first classified as pro-scientific, anti-scientific or non-scientific, according to whether they promote, retard or have no effect on the advancement of science;

and again as personal, group or disinterested motives, depending on whether they spring from a desire to serve individual, group or no particular interests. In this analysis, Dr. Wright has wise and stimulating words about opinions or judgments of the relative worth of scientific investigations. Qualitative judgments are fairer than formal judgments, for they take account of the degree of good sense, originality, accuracy and open-mindedness to which the study bears witness, as well as of the suitability of the form and substance to the solution of the problem in hand. The preliminary work required before scientific laws can be formulated may be quite as scientific as the subsequent processes of interpretation to which it leads; and an economic law may be fully as scientific as the law of eclipses, provided all available evidence is used in developing the economic law—and used with the same degree of rationality as that attained in developing the astronomical law.