scattering of very slow neutrons in crystals. In favourable instances the nuclear Zeeman effect should be observable.

One may imagine, too, searches for effects of electric or magnetic fields upon any small electric or magnetic moments that may be possessed by free photons, and one can see interesting problems concerning the limitations to the possible narrowness of Mössbauer lines from transitions still longer-lived than the 10^{-7} sec. iron-57. Are these limits due to fluctuations in crystal fields, to the finite size of the crystal (or of whatever part of it may act as a unit in declining to accept the proferred recoil energy) or to other causes ? If the relative motion of the source and the absorber is at a frequency high compared with the inverse lifetime of the excited state, will the process recognize or ignore this motion ?

The recoilless absorption process should be accompanied by sharply resonant scattering, weakened by the strong internal conversion of low-energy gamma transitions. In experiments at Birmingham, with gold-197, it appears just observable. This scattering should be coherent with the Rayleigh component and, in favourable circumstances, should show the lattice interference patterns familiar in X-ray work from which not only the positions of the resonantly scattering nuclei but also the phase of scattering should be measurable.

Thus, after a long period of little progress, γ-ray optics now offers a range of phenomena comparable with those known in the fields of light and of X-rays, and, though admittedly in rather special circumstances, a far superior resolving power.

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OBITUARIES

Prof. P. Lebeau

PAUL LEBEAU, professor of pharmaceutical chemistry, Paris, and member of the Paris Academy of Sciences, died on November 18, having nearly reached the age of ninety-one.

Lebeau began his career in chemistry as a student at the École de Physique et de Chimie, Paris, and his outstanding qualities were immediately appreciated by Prof. Étard. His early publications attracted the attention of H. Moissan, and when the latter was appointed to the chair of chemistry in the Faculté des Sciences at Paris, Lebeau was made director of his laboratory. His researches in inorganic chemistry, particularly with regard to fluorspar and fluorine, led to the degree of D.Sc. in 1898. During this period, he was also studying to become a pharmacist, and he achieved this object in 1899.

Lebeau was appointed to the chair of toxicology in 1908, which position he held until 1918. He deliberately orientated this subject towards industrial hygiene and became intensely interested in its medico-legal aspects. As a result, his services during the First World War were of outstanding merit, and in 1918 he succeeded Prof. Charles Moureu in the Berthelot chair in the Collège de France. His great energy and outstanding ability were then directed towards the subject of pharmaceutical chemistry, and his efforts met with similar international recognition as they had already done in the realm of toxicology. His treatise on pharmaceutical chemistry has passed through many editions and is accepted as a standard work on this subject.

As president of the Commission des Hautes Températures of the Centre National de la Recherche Scientifique he was largely responsible for the outstanding success of this body, which resulted in the publication in 1924 of an important book entitled "Fours Électriques et Chimie". This work has attained international recognition.

Not unnaturally, the services of a scientist of such outstanding merit were in great demand, particularly in connexion with government and international committees. These services were given without restraint, and Lebeau made outstanding contributions during his connexion with the Commission des Études Chimique de Guerre, the Conseil d'Administration du Centre National de la Recherche Scientifique, the Commission Internationale des Poids Atomique, and the Société Chimique de France.

Prof. Lebeau's long life covered the period when the science of chemistry was expanding rapidly, a period which was characterized by the introduction of many new chemical concepts. He played his part in this new thinking and can be regarded as one of the architects of modern pharmaceutical chemistry. His career and devotion to the science should be a stimulant to all future students of chemistry.

W. H. LINNELL

Mr. P. R. Coursey

MR. PHILIP RAY COURSEY, of the Dubilier Condenser Co., Ltd., died on January 3. Mr. Coursey, who was born in 1892, was educated at University College, London, and became assistant to Sir Ambrose Fleming at the College. During the First World War he was Admiralty inspector of wireless telegraphy in H.M. Auxiliary Patrol, and in 1919 became technical research assistant at H.M. Signals School. During

1920–23 he was on the editorial staff of the *Radio Review* and the *Wireless World*, to the second of which journals he was a frequent contributor. During this period he was an active and enthusiastic member of the Wireless Society of London (later, the Radio Society of Great Britain); and he was responsible for organizing the British amateurs who in 1921 co-operated in the tests conducted by the American Radio Relay League for establishing radio communication between the United States and Britain. Mr. Coursey was also an active experimenter in the early development of wireless telephony, and was the author of several books on this and allied subjects. He became chief engineer of the Dubilier Condenser Co., Ltd., in 1923, a position which he held until 1931, when he was appointed technical director of the Company; he retained that position with distinction until his retirement in 1957, when he was appointed technical consultant in addition to retaining his directorship.

Mr. Coursey was the originator of many important developments and held numerous patents. His extensive knowledge and experience have been a valuable contribution to the industries with which he was connected. He also took a prominent part in and made valuable contributions to the deliberations of the electrical and telecommunications industries both on British and international committees.

NEWS and VIEWS

Theoretical Physics at St. Andrews : Prof. R. B. Dingle

Dr. Robert Balson Dingle, reader in theoretical physics in the University of Western Australia, has been appointed as the first occupant of the new chair of theoretical physics in St. Salvator's College of the University of St. Andrews. After a notable undergraduate career as Bournemouth Borough Scholar and major scholar at St. John's College, Cambridge, during which he held the Wright Prize twice and also the Hughes and Hockin Prizes, and at the end of which in 1946 he confused his Tripos examiners by, in effect, dismissing their questions and setting and answering his own, he found a corner in the Royal Society Mond Laboratory and began his research career, shortly thereafter being appointed to a fellowship at his College. Almost immediately, he began to publish, and a steady stream of valuable papers has continued since, uninterrupted by a series of moves of increasing geographical amplitude, first to Bristol, then Delft, then Ottawa, and then Nedlands in Western Australia.

Dr. Dingle's publications have covered three main fields and a few small ones. First, chronologically, came a series of elegant papers clarifying the hydrodynamics of liquid helium II, and in particular, second sound. This was followed by a series on collective electron effects in metals, in which diamagnetic or cyclotron resonance was predicted. This series also contained several important contributions to the understanding of the complicated oscillatory magnetic phenomena in metals known as the de Haas–van Alphen effect, and the removal of the apparent discrepancy between observation and theory of optical reflectivity in metals by an extension and correction of the Reuter–Sondheimer theory. The most recent series of papers is more mathematical and is concerned with the evaluation of integrals used in mathematical physics. In addition to these three main streams, he has also made useful contributions on semi-conductors and on quantum and statistical mechanics.

Pharmacology in London : Prof. G. V. R. Born

Dr. G. V. R. Born, recently appointed to the Vandervell chair of pharmacology at the Institute of Basic Medical Sciences in the University of London, took his M.B. and Ch.B. at Edinburgh in 1943 and his D.Phil.(Oxon) in 1951. After his return from service as army pathologist in the Far East, he took up research in the rapidly developing new field of biochemical pharmacology. While on the staff of the Medical Research Council's Toxicology Research Unit he became interested in metabolic inhibitors, and, on returning to the Nuffield Institute for Medical Research at Oxford in 1953, he studied the actions of these inhibitors on smooth muscle. His main field of work has been on the pharmacologically active amines, and this led him to study the blood platelets by biochemical and pharmacological methods. A most notable contribution was the discovery of large amounts of adenosine triphosphate in platelets. The role of this substance in the uptake and storage of 5-hydroxytryptamine by platelets and its fate during clotting are now being explored. Dr. Born has also taken an active part in the teaching at Oxford, both in the Departments of Pharmacology and Pathology, and as a medical tutor at St. Peter's Hall. He has travelled widely and is well known to his scientific colleagues on both sides of the Atlantic.

College of Advanced Technology, Birmingham : Dr. T. Lupton

Dr. T. Lupton has been appointed head of the Department of Industrial Administration of the College of Advanced Technology, Birmingham, as from April 1. At present senior lecturer in industrial sociology in the University of Manchester, Dr. Lupton began his career as an apprentice marine engineer, and later became an engineering draughtsman. He afterwards gained a diploma in economics and political science at Ruskin College, Oxford, proceeded to an honours degree in economics at Oriel College, Oxford, and was awarded the degree of Ph.D. at Manchester in 1959. Dr. Lupton has carried out a number of investigations on the relationship between occupation and social status, and recently the Department of Scientific and Industrial Research granted him £29,000 for a five-year research project on "Social Factors affecting Workshop Behaviour"; he will be continuing this work at Birmingham with the aid of Research Fellows and assistants.

National Institute of Agricultural Botany : Mr. G. W. G. Briggs

Mr. G. W. G. Briggs has been appointed assistant director of the National Institute of Agricultural Botany. Since 1948 he has been head of the Seed Production Branch of the Institute, where he was responsible for the development of field approval and