

Obituaries

Dr Heinz London

HEINZ LONDON, who died on August 4, was distinguished by the number and quality of the contributions he made in a wide field of physics and especially in the field of low temperature research. Born in Germany in 1907, he studied first at Bonn University and the Berlin Technische Hochschule. At Breslau University, under Professor (later Sir) Francis Simon, he first became interested in the electrodynamics of superconductivity, and investigated the high frequency resistance of superconductors. In 1934 he joined Simon at the Clarendon Laboratory and continued his work on superconductivity. In a letter to *Nature* he suggested a relationship between current and electric field which took account of the possible presence in a superconductor of normal conducting electrons. This was the starting point for the electrodynamic theory of superconductors which he then evolved in collaboration with his brother, the late Fritz London. One of their joint papers, "The Electromagnetic Equations of the Superconductor", is regarded as a classic in this field of work. London wrote independently on the phase transition of superconductors in a magnetic field, and carried out experiments to show that a superconductor acquired surface charges in a similar manner to that of an ordinary conductor.

From Oxford he went to the Wills Laboratory at Bristol and succeeded in measuring the high frequency resistance of superconductors, thus demonstrating the presence of normal electrons and their gradual decrease with decreasing temperature. During this period London also suggested and took part in experiments on the superconductivity of thin films. The superfluid phenomenon of liquid HeII was becoming known and London carried out a simple experiment which showed that an attraction is exerted at a light vane by a heated plate immersed in liquid HeII. Analysis of this experiment led him to establish the thermodynamic relationship between the fountain effect and entropy in HeII.

During the war, London worked on the atomic energy project and developed a method of separating the uranium isotopes by ionic transfer. This he showed to be unsuitable for large scale separation and at the end of the war he was investigating the liquid thermal diffusion method. This interest in isotope separation was further extended when in 1946 he was given the task of devising methods for separating stable tracer elements which were urgently

required by the Medical Research Council for biological work. He concentrated on ^{13}C , and in view of the known difficulties in chemical methods decided to try the method of low temperature distillation. He designed a fractional distillation column and used carbon monoxide for the enrichment of ^{13}C and ^{18}O isotopes. In the course of this he came across a new effect of considerable theoretical interest, namely, the effect on vapour pressure of the symmetry of the molecule. The distillation column has now operated for long periods and supplies all the ^{13}C used, not only in Britain, but also in the United States.

London joined the Atomic Energy Research Establishment at Harwell when it was set up in 1946. During the first years he was concerned with the development of the centrifuge technique of isotope separation; later, after this technique had been superseded by the economically more attractive gaseous diffusion method, he suggested a way of removing nitrogen continuously from the enriched uranium hexafluoride in the diffusion plants and successfully demonstrated the method on an experimental scale.

While at Harwell he continued his interest in low temperature research and designed a liquid helium cryostat for use with the BEPO reactor for producing cold neutrons. He later became involved in a project to design a liquid hydrogen refrigerator system to feed a small flask in a reactor, a project which required extreme care in safety design and in system reliability.

In the last few years his technical work concentrated on three major technological projects. These were studies of thin film and filamentary hard superconductors, the development of the $^3\text{He}/^4\text{He}$ dilution refrigerator, and a study of force-free current and magnetic field distributions in solid superconducting spheres. Of these the dilution refrigerator has had the greatest impact, and, developed for commercial sale, it is now being used in various laboratories for giving extremely low steady temperatures and considerable heat removal rates. This is likely to rank as one of the truly important contributions to low temperature research, for it allows long duration experiments with heat dissipation to be carried out in the temperature range below 0.1 K.

In 1959 London was elected to give the first Simon Memorial Lecture: he chose for the title of his talk "Superfluid Helium". He was elected a Fellow of the Royal Society in 1961.

Announcements

University News

Dr R. N. Haward, visiting reader in the University of Manchester Institute of Science and Technology, has been appointed to the chair of industrial chemistry, **University of Birmingham**.

Dr Arthur T. Hertig has become professor of pathology at **Harvard University** and chairman of the Division of Pathobiology at the New England Regional Primate Research Center.

Dr Richard K. C. Lee, dean emeritus of the University of Hawaii School of Public Health, has been appointed executive director of the Research Corporation of the **University of Hawaii**, in succession to **Dr Robert Hiatt** who resigned at the beginning of this year.

Mr Harold P. Rooksby, a senior scientist with General Electric Company and co-editor of the *Journal of Applied*

Crystallography, has been appointed external professor within the Department of Ceramics, **University of Leeds**.

Dr Mark Guter, managing director of CJB (Projects) Ltd, has been appointed to the second chair of chemical engineering tenable at University College London. The following titles have been conferred within the **University of London**: professor of psychopharmacology, on **Dr Hannah Steinberg** in respect of her post at University College; professor of anatomy, on **Dr D. W. James** in respect of his post at University College; professor of theoretical physics, on **Dr T. W. B. Kibble** in respect of his post at Imperial College; professor of biochemistry, on **Dr A. P. Mathias** in respect of his post at University College; professor of computer science, on **Dr P. A. Samet** in respect of his post at University College; professor of information processing, on **Mr K. Wolfenden** in respect of his post at the Institute of Computer Science.