

He was deeply interested in the history and philosophy of science and attended many congresses. He was a great believer, like Pasteur, Metchnikoff, Roux, Duclaux and others, in the progress of humanity and maintenance of world peace through the experimental method of science. His research work was of great practical value in agriculture and medicine.

Bertrand was a member of the French Academies of Sciences, Agriculture and Medicine.

His only son, Dr. Didier Bertrand, who also is a well-known medical man, is following in the footsteps of his father and pursuing investigations on trace and oligo elements in the Pasteur Institute of Paris.

N. R. DHAR

## NEWS and VIEWS

### Colour Chemistry and Dyeing at Leeds :

Prof. W. Bradley

THE premature retirement of Prof. William Bradley from the chair of colour chemistry and dyeing at the University of Leeds in September 1961, owing to ill-health, was a severe loss to his department. An exceptionally gifted lecturer, he was able to impart to many of his students his own enthusiasm for research, and during the thirteen years (1948-61) in which he occupied the chair, he succeeded—aided by the generosity of industry—in building up a research school that was very large in proportion to the size of his department. Prof. Bradley's name will always be associated with the chemistry of anthraquinonoid vat dyes, a subject on which he is the leading authority. Since 1951 a stream of highly important papers on this subject has appeared in the *Journal of the Chemical Society* under his name and the names of his research students. In particular, he has been interested in the mechanism of formation of vat dyes, a hitherto almost neglected topic. Other fields which he has explored include the chemistry of heterocyclic bases and their metal derivatives, the oxidation of leuco-esters of vat dyes, and azo coupling in non-aqueous media. He has also contributed to the theory of dyeing through his study of the adsorption of mandelic acid (an optically active compound) by wool. He gave every encouragement to his staff to undertake research and was always generous in the allocation of funds and research students. Another notable feature of this period was the introduction into the undergraduate course of lectures and laboratory work on pigments, thus filling a serious gap. It is some consolation to know that Prof. Bradley's health is now much improved, and all those connected with the department, in particular his colleagues and his former students, hope that Prof. and Mrs. Bradley will enjoy many years of happiness in their new home in Paignton, Devon.

Mr. I. D. Rattee

MR. I. D. RATTEE, who is to succeed Prof. Bradley to the chair of colour chemistry and dyeing at Leeds, was educated at the Imperial College of Science and Technology, where he graduated with honours in chemistry in 1945. He is an associate of the Royal College of Science, and in 1960 was awarded the Gold Medal of the Society of Dyers and Colourists. Following graduation, Mr. Rattee was appointed technical officer in the Dyehouse Department of Imperial Chemical Industries, Ltd. (Dyestuffs Division). From 1946 until 1950, he carried on the work initiated by the late Dr. F. Townend on the level dyeing properties of acid and chrome dyes on wool and the relation between these properties and constitution. In 1951, Mr. Rattee departed from the normal lines of wool

dyeing research and began work on the use of dyes capable of reacting with the fibre substrate in wool dyeing. He made extensive investigations of the mechanism and chemistry of dye-fibre reactions and examined a class of reactive dyes, containing 2 : 4-dichloro and 2-chloro-4-amino triazin-6-yl groups because of their particular properties for reactivity towards cellulose. This work resulted in the discovery of the reactions which led to the introduction of the Procion dyes in 1956 and the subsequent appearance of an entirely new dyestuff class. Since that time, his work has been almost exclusively devoted to the study of reactive dyes for cellulosic fibres, with particular reference to the development of novel reactive systems, novel techniques of application, and also examination of the fundamentals underlying the behaviour of this type of dye. Mr. Rattee has lectured at the Manchester College of Science and Technology.

### The Third Fritz London Award :

Prof. J. Bardeen

PROF. JOHN BARDEEN, professor of electrical engineering and physics at the University of Illinois and 1956 Nobel Laureate in physics, has been awarded the third Fritz London Award for distinguished research in low-temperature physics. In collaboration with Prof. Leon M. Cooper, now of Brown University on Rhode Island, and Prof. J. R. Schrieffer, of the University of Illinois, Prof. Bardeen developed the first successful microscopic theory of superconductivity, which is the characteristic loss of all electrical resistance by some metals at extremely low temperatures. In 1957 they published the now well-known Bardeen-Cooper-Schrieffer theory of superconductivity, which has played an outstanding part in the clarification of one of the principal problems of solid-state physics. Prof. Bardeen graduated from the University of Wisconsin, received his doctoral degree from Princeton University in 1936 and an appointment as Junior Fellow from Harvard University. He was with Bell Telephone Laboratories from 1945 until 1951, where he carried out research with Walter H. Brattain and William Shockley on semiconductors, in the course of which they discovered the transistor effect. For this achievement they received the 1956 Nobel Prize in physics. Prof. Bardeen joined the faculty of the University of Illinois in 1951.

The Fritz London Award, established in 1957 and awarded at two-year intervals, is named after the first scientist to elucidate the nature of superconductivity. He also made significant theoretical contributions towards an explanation of superfluidity in liquid helium, the state, unique to this liquid, in which normal viscosity disappears and the liquid 'climbs' the side of its container. The Awards,