TOP PEOPLE IN PHYSICS

Nobel Lectures in Physics 1901–1921

Including Presentation Speeches and Laureates' Biographies. Pp. xii+498. (Amsterdam, London and New York: Elsevier Publishing Company, 1967. Published for the Nobel Foundation.) 160s.

WITH the benefit of hindsight, the wonder is not how well the Nobel Committee chose but that there were so many giants from whom to choose. The innocent reader of this anthology of the Nobel prizewinners in physics between 1901 and 1921 must be forgiven if he asks how the committee could have put a foot wrong. Natural enough to start off with Röntgen (who was unfortunately allowed to collect his medal without delivering the now customary lecture), although even in 1901 it must have been hard to make Lorentz, Zeeman, the Curies and Rayleigh wait until the succeeding three years. To those taught physics in Britain, it is salutary to be reminded that Professor Phillip von Lenard was awarded the Nobel Prize in 1905 for his work on cathode rays, and that the differences of interpretation between him and the school at Cambridge around Thomson were still flourishing when von Lenard came to speak at Stockholm. "We have no evidence that electricity is a special *material* with inertia; it appears to be simply a *state*—a state of the ether . . ." But the following year, in 1906, it was J. J. Thomson's turn to collect a prize and to make a firm declaration of the atomicity of negative electricity. And then, of course, came Lippman (for the development of colour photography), Marconi and Braun, van der Waals, Wien, Gustaf Dalen (who developed automatic regulators for lighthouses and lightships), Kamerlingh Onnes, von Laue, the two Braggs, Barkla (whose influence on the development of atomic theory is much neglected), Planck (rather late in the day, in 1918), Stark, Guillaume (the Swiss who developed the steel alloys of the invar type used widely as stable yardsticks) and finally—also rather late in the day—Einstein in 1921. Plainly the first Nobel committees were more conscious of technology than their successors have been but, even without the claims of the technologists, it is easy to understand why Rutherford had to go among the chemists for his prize.

The style in which the Nobel prizewinners address the Stockholm gathering is revealing. It is a continuing surprise to see how ready the speakers are to deliver a solid professional paper. Perhaps von Lenard explained why when he began saying that "I assume that you would prefer me to tell you what others could not tell you". But some speakers let it slip that they consider the occasion a singular honour, others are pleasantly anecdotal, and the account by van der Waals of how he came to be interested in heat by reading Clausius on the subject is a particularly valuable way of showing how far back go the roots of what is now called physics. The younger Bragg is urbane. Einstein, awarded the prize for "his services to theoretical physics and especially for his discovery of the law of the photo-electric effect", talked unabashed about general relativity and the need for a unified field theory. There are no jokes. But for all their variety, the first two decades of addresses by physics prizewinners must have given the selectors a conviction of their own correctness.

The success with which the Nobel committees made their first choices necessarily prompts the question of whether their task is anything like as easy now that the scale and the pace of scientific work have changed enormously. No doubt a part of the problem is imaginary. History can frequently make people into giants, and giants into demi-gods, and it is necessarily difficult to imagine that each new research student carries the white tie of the Nobel presentation ceremony in his lab coat pocket. But the problem is also partly real. The Nobel system has done well to survive into the sixties without letting scale get the better of it, but the award of the

prizes is bound to seem more and more arbitrary as time goes on. The reputation of an exclusive club depends not merely on the reputation of its members but also on its success in persuading the most eligible people to membership.

JOHN MADDOX

SERUM PROTEINS

Serum Proteins in Health and Disease

By Georges Sandor. Translation editor Einhart Kawerau. Pp. xiii+768. (London: Chapman and Hall, Ltd., 1966.) 252s. net.

THIS is a work on the serum proteins which begins at the beginning. It permits the reader to re-live the extraordinary developments in a field which is now so immense that there are few people left who—like me—can span the history from the past to the present day. As this book demonstrates, much falls into place, and we can understand a subject more deeply if we can follow its evolution. One has to be grateful to the author, who is the Head of the Physical Chemistry Laboratory, Protein Division of the Institut Pasteur in Paris, who has with singular authority assembled this erudite survey.

The book is divided into three parts: (1) The normal serum proteins; (2) their physiology and pathology; and (3) the serum proteins in fluids other than blood. The first part begins with a historical introduction with 342 references, many of them belonging to the nineteenth century. There is a somewhat Victorian flavour attached also to a section on the "euglobulins" which are in fact coprecipitates of α - and β -globulins in differing proportions. There are chapters on the antibodies (170 references), structure and denaturation of serum proteins (235 references), and a superb chapter on their qualitative and quantitative characteristics, well illustrated and supported by 643 references. The second part of the book is concerned with the origin of antibodies and of the other serum proteins, the role of the reticulo-endothelial system, the major aberrations in γ -globulin synthesis, the lipoproteins, the glycoproteins and the physiological and pathological changes of the serum albumin level. Throughout there is maintained the historical background and the development of the theme up to the present state of knowledge, the support by numerous useful tables, by illustrations, and by copious references. The last part deals with proteinuria, the role of the serum proteins in oedema and effusions, and in the cerebrospinal fluid.

This is an unusual book with a refreshing individuality, and it should be of value to a wide circle of natural scientists and medical men.

H. LEHMANN

INFRA-RED

Infra-red Physics

By J. T. Houghton and S. D. Smith. Pp. xiv+319. (Oxford: Clarendon Press; London: Oxford University Press, 1966.) 60s. net.

IN the several specialized texts on the techniques and theory of infra-red spectroscopy which have appeared in recent years, the emphasis has usually been on the experimental and chemical aspects of the subject, while the physical phenomena associated with infra-red radiation have generally been treated as a part of solid state theory. In this volume, the authors have discarded these somewhat artificial boundaries, and in doing so have succeeded in presenting a unified account of the fundamentals of both the theory and practice of chemical and physical infra-red spectroscopy in the spectral range from 0.8 μ to 1,000 μ .

The volume begins with a brief account of the basic principles of the classical and semi-classical treatments of