

BOOK REVIEWS

TOP BIOLOGISTS

Nobel Lectures

Physiology and Medicine 1901–1921, including Presentation Speeches and Laureates' Biographies. Pp. xii+561. (Amsterdam, London and New York: Elsevier Publishing Company, 1967. Published for the Nobel Foundation.) 180s.

THE Nobel Foundation has arranged for the publication, in English, of the Nobel Lectures in the various subjects (physics, chemistry and so on). This volume contains the lectures in physiology and medicine for 1901–21. In trying to make overall judgments about this series of statements one is handicapped by their small number, which gives any generalizations small statistical reliability, especially because the authors and their subjects are very varied. It would perhaps have been better to review all the lectures in one subject when they have been published. This would involve reading three times more of them and the strain of following the great thoughts of so many great men might lead to disillusionment.

As it is, however, the volume is a pleasure and a stimulus. Many thoughts occur as one reads, mainly thoughts of admiration. The staff of professors of the Royal Caroline Institute have done their work well. There is nothing here that is silly, very little that is wrong and an enormous amount that was highly original in its day and is still interesting now. Only one prize was awarded for work that turned out to be of quite minor scientific and clinical importance (that of Finsen in 1903 for phototherapy of *Lupus*, and he gave no address). But what a galaxy of success there is; Ross and Laveran, Koch and Pavlov, Golgi and Cajal, Metchnikoff, Ehrlich and Krogh, Kossel and Carrel. Of course, such a selection cannot always be exactly right. The electors have had their quirks, such as choosing Ross five years before Laveran, and pairing off Golgi and Cajal together, in spite of their disagreements and dislikes. But such differences of personal and scientific style are with us still. To see the lucky ones ill-matched together at least gives sardonic amusement to the less fortunate.

It would not be easy to make a convincing analysis of the success of these biologists and medical scientists. But some general points emerge. The unity of biological and medical science stands out on almost every page. Some assert it openly as Metchnikoff: "To solve medical problems comparative pathology had to be brought in". In his case it involved the study of the larvae of starfishes and it was with these that the phenomena of inflammation and phagocytosis were revealed, to be confirmed later by work on water fleas!

Nearly all of these prize-winners used and refer to animal experiments at the very centre of their work, some without being theoretical about it, others like Pavlov, meditating on the necessity to "ignore the mental state of the animal". Having revealed how "four simultaneously acting lethal causes were deliberately eliminated" he comments: "A striking proof of the power of science that regards the organism as a machine", a power we still need as much as ever today, but are often too mealy-mouthed and frightened of conventional views to admit it.

Of course, the awarders of the prizes have not been unheeding of the importance of the practical clinical results of medical research. We cannot, therefore, use the lectures to estimate how far investigators work with practical ends in view. But the awarders carefully

avoided over-attention to this aspect and it is interesting that those of their choices who gave least attention to immediate practice were conspicuously the more influential and also in the end produced the greatest effects. The surgeon Kocher no doubt did a great deal for our understanding of the pathology of the thyroid and his address is an interesting account of it, but it is incomparably less important than the entirely academic presentations such as that by Cajal on neurones or by Kossel on the nucleic acids, protein and histones of the nucleus. Again both of these two chose material from all over the animal kingdom. Kossel took histones from the red cells of birds and the sperm of sea urchins and cephalopods and protamines from the milt of fishes. What a lot he knew about the nucleus even in 1910.

Indeed it is inspiring, if humbling, to see the width of knowledge, experience and indeed wisdom shown by most of these men. Of course they wrote their addresses carefully, but also in something of a hurry. The products must reflect their natural capacities and tastes, and these are mostly admirable. Many of the Nobel Prize-winners write well, often personally, but with respect for their predecessors and contemporaries, and seldom rancour over the opposition which many of them encountered. Final reflections: no single address in twenty years contains a mathematical formula, and only Ross, Cajal and Golgi felt the need for any great amount of illustration. Even considering the formal nature of the occasions of presentation these are curious features of the addresses delivered by the greatest ones of physiology and medicine (1901–21).

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BRAIN-HORMONE INTERACTIONS

Neuroendocrinology

Vol. 2. Edited by Lucian Martini and William F. Ganong. Pp. xix+777. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1967.) 256s.

THE first of the two volumes of this treatise on neuroendocrinology dealt mainly with the anatomy of the hypothalamo-pituitary system in mammals, methodology, and the classic problem of the neural control of the secretion of the anterior and posterior pituitary hormones. It was reviewed (*Nature*, 215, 448; 1967) as an addition to the literature of a rather specialized area of research that was already extensively covered by other reviews, monographs and reports of symposia. Considerable duplication was inevitable and, although some excellent chapters were noted, the book as a whole was not considered to offer a great deal of material that was not already fairly easily available elsewhere to a reader reasonably familiar with the field. The same cannot be said of the second volume, for the editors, Ganong and Martini, have now made available a more extensive and complete survey of neuroendocrine topics than has been attempted previously in a single work.

The overall plan seems to have been to assign a general field, rather than a limited topic, to contributors actively engaged in a wide range of biological research. On the one hand this approach has resulted in an expert compilation and sifting of scattered results from many sources that are relevant to neuroendocrine investigations, while on the other hand those workers concerned with varied aspects of a particular problem have been able to present their specialized knowledge in a coherent form for the general reader. Contributions of the first type include a chapter by Gold and Ganong on the effects of drugs on neuroendocrine processes, a critical review by Ganong and Lorenzen on brain neurohumours and endocrine function, and discussions of invertebrate and lower vertebrate neuroendocrinology by Hagadorn and by