

A Celebration and Review

British Biochemistry. Past and Present. Biochemical Society Symposium No. 30, London, Dec. 1969. T. W. GOODWIN, Ed. Academic Press, New York, 1970. x, 228 pp., illus. \$9.

The 13 articles in this volume were prepared in connection with the 500th meeting of the Biochemical Society, the first meeting having been held on 14 March 1911. The stated purpose of the symposium was to "survey the achievements" of British biochemistry during the intervening 58 years.

The first section, entitled Molecular Biology, includes articles by J. C. Kendrew, who recounts briefly the beginnings of the application of x-ray methods to the study of biological materials, and by D. C. Phillips, who carries the story to the recent work in England (and elsewhere) on the three-dimensional structure of enzyme proteins. There follows an essay by B. S. Hartley on recent studies concerning the amino acid sequences of proteins. From the point of view of the historian of science, the succeeding article by N. W. Pirie is of special value, as it provides an incisive retrospect on the work he and F. C. Bawden did during the 1930's on plant viruses.

The second section, entitled Immunology, begins with J. H. Humphrey's excellent review of recent work on the role of lymphocytes in the immune response. This is followed by articles by R. R. Porter on the structure and combining sites of antibodies and by W. T. J. Morgan on the chemistry of the immunologically active carbohydrates.

The third section, entitled Intermediary Metabolism, includes a brief survey by H. A. Krebs of the highlights in the development of this subject since 1911, and G. Popják's valuable account of the beginnings of British studies on metabolism with the aid of ^{14}C -labeled compounds. The section concludes with H. L. Kornberg's article on the control of the tricarboxylic acid cycle in *Escherichia coli*.

The final section, Separation Methods, offers R. L. M. Synge's recollections of the beginnings of liquid chromatography, an article by F. Sanger and G. G. Brownlee on their new method for determining nucleotide sequences in RNA, and an account by A. T. James of the initial development of gas-liquid chromatography.

The achievements surveyed in this

small volume amply attest to the importance of the contributions made by British scientists to the development of modern biochemistry. Although there is repeated emphasis, throughout the book, on the international character of science, and the authors have been careful to indicate relevant advances made outside Britain, the topics selected for discussion understandably tend to stress those areas in which the British effort has been particularly significant.

In appreciating the value of this book to students of the historical background of present-day biochemistry, this reviewer regretted that the 58-year time span had not been divided somewhat more evenly. The survey could have done more in recalling the special contributions of British biochemistry during the first half of this period, when the center of gravity still appeared to be in Germany, and before the United States had assumed a dominant role. For example, it would have been more than sentimental pride to include an account of British work on intracellular respiration, with special reference to the work of Keilin and the Hopkins school. Also, more attention might have been given to the role played by British scientists in

the elucidation of the biochemical basis of nutrition, or in the development of protein chemistry, before 1939. Finally, except in the article by Popják, the reader does not glimpse the remarkable achievements of British organic chemists in helping to lay the groundwork of modern biochemistry through their studies on the chemistry of amino acids, carbohydrates, nucleotides, and isoprenoid compounds. The volume would have been enriched as a contribution to the history of science if these neglected topics had been treated more fully, even at the cost of the omission of several of the more topical essays, some of which repeat recent research reports readily available in other publications.

This expression of regret on the part of one reader should be weighed, however, against the undoubted value of this book to all students of biochemistry. In recalling some of the earlier steps in the development of our subject, the Biochemical Society has reminded us of our debt to many scientists, among whom British biochemists will always occupy a distinguished place.

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On the Primate Biogram

Social Groups of Monkeys, Apes and Men. MICHAEL R. A. CHANCE and CLIFFORD J. JOLLY. Dutton, New York, 1970. 224 pp. + plates. \$11.50.

Almost too late man has realized that his own behavior and social structure are understandable only as a variant of a basic "primate biogram" or way of life. This revelation, coupled with the rapidity with which many species of primates are nearing extinction, has recently led to a tremendous increase in studies of subhuman primates in the laboratory, in captive colonies, and in the wild. Chance and Jolly have attempted a synthesis of the data regarding one major subdivision of the primate biogram: social structure.

Cognizant of the incommensurability of many of the available data on subhuman primates, the authors have set out not only to present their conclusions concerning the structure of primate societies, but also to provide a

standard theoretical model for future work and thus make possible a science of comparative social behavior. Their approach to the study of behavior is based upon the rejection of functional explanations (both biological and social) for behavioral phenomena in favor of discerning "the underlying patterns by discovering the *order* which holds together the separate parts of the behaviour" (p. 16; my italics).

Chance and Jolly propose that the order binding together the behavior and molding the social groups of most Old World monkeys and apes (these being chosen for examination because of their phylogenetic proximity to man and the availability of data on wild populations) is the attention orientation of the individual group member. Differing patterns of attention orientation, and of the social bonds which are the result of predominant attention, have produced two major types