BOOK REVIEWS

COMPANION TO BIOCHEMISTRY: SELECTED TOPICS FOR FURTHER STUDIES

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Longman Group Limited, London, 1974, pp. 700, ISBN 0 582 46004 2, £ 7.00

The proliferation of guises under which biochemistry appears, viz. biochemical science, biochemical cell biology, molecular "this and that", attests to the popularity of what may be collectively termed molecular biology. Publishers of textbooks are aware of this interest and have put out a list of excellent titles, both new and revised editions of standard texts, which are suitable for all types of introductory or beginning courses in biochemistry, be it at the freshman or graduate level.

However, there is a real need for an appropriate textbook which can be used in the senior undergraduate courses or in courses given to students enrolled in a M.S. degree program in biochemistry. Information concerning current facts, experimental approaches and concepts lie scattered in the literature, or are contained in the reports of recent symposia which may come out in print anywhere from one to five years after the events. In any case, these monographs and review articles address researchers working in the field and are never quite useful to the novice preparing to plunge into the ardour of research.

"Companion to Biochemistry" is an attempt to overcome this need. Twenty-five authors have contributed twenty-one articles which have been selected by the editors because they are "either poorly treated in the textbooks, or poorly understood by the average final-year undergraduate (in U.K.) or are not at present regarded as central to the teaching of biochemistry but which may become increasingly important." The book has clearly been written with the student in mind for the chapters are divided into numbered and titled sections which are often in turn further subdivided into numbered units. The twenty odd topics cover proteins (biosynthesis, chemical modification, enzyme kinetics (both steady-state and relaxation), nuclear magnetic resonance spectroscopy, electronic spectra and optical activity, nucleic acid (structure and function), polysaccharides (structure and function, bacterial cell wall and plant cell wall), immunoglobulins (structure and genetics), viruses (structure and replication), microorganisms (growth conditions, prokaryotic genetics and microbial pathogenicity), protozoa (as tools in biochemistry), lysosomes (including peroxisomes), cell cycle, mitochondrial oxidative phosphorylation, hormonal control of metabolism (using insulin as model), and muscle contraction (molecular basis).

The inclusion of chapters on selected physical techniques (albeit applied to protein) will gratify those lecturers who felt that this area has often been neglected or poorly treated in standard texts. The two chapters on N.M.R. and optical spectroscopy should provide students with some basic principles to enable them to understand these phenomena in simple physical terms. The chapter on rapid reaction techniques is a highly recommended reading which will enable students to go from conventional classical kinetics (which is treated in a separate chapter) to transient kinetics (eg. stopped-flow technique) and its applications to biochemistry. The brevity of the presentation may mean that to the uninitiated several readings (or consultation with a practising researcher) may be needed in order to grasp its potential use and limitations. The chapters on protein biosynthesis, chemical modification of proteins and muscle contraction stand out in terms of clarity of writing and comprehensiveness of discussion.

One danger of trying to write a text that is up-to-date is that the material become all too soon dated. This reason, together with the rather diverse choice of topics, may make the book of less value to students unless it is adopted as a text in their courses of study. On the other hand, lecturers should find the book a gem in helping them prepare lecture notes or to up-date themselves in topics peripheral to their reading.

This problem of flexibility in the subject matter to suit individual lecturer's tastes and whims has been tackled in a different manner by another publishing house. Chapman and Hall are producing a series of short monographs (less than fifty pages) in their "Outline Series in Biology" which are aimed at the same market. However, unless the price per issue (pegged now at £ 1.30) can be kept lower, the cost to students who find themselves having to master ten to fifteen topics may be prohibitive.

Comments to the chapter on rapid reaction kinetics by Dr. Prapin Wilairat are gratefully acknowledged.

Prapon Wilairat

THE SIAMANG IN MALAYA : A FIELD STUDY OF A PRIMATE IN TROPICAL RAIN FOREST

DAVID JOHN CHIVERS

S. Karger, Basel, 1974, pp 335, 130 SFr.

Of the nine presently recognized species of lesser apes (Family Hylobatidae) of southeast Asia, the siamang is only the second to receive intensive study. The classical "gibbon" is the white-handed gibbon, studied by C. R. Carpenter in northern Thailand and J. O. Ellefson in Malaya. The Kloss' and agile gibbons have recently been studied ; the others, including the endangered pileated gibbon of Thailand and Cambodia, remain to be studied in detail. Because the siamang is about twice as

large as the other gibbons, it is of great interest to compare its ecology and behavior with those of the smaller species.

The aims of this study are to describe the way the siamang uses its habitat and its social organization, with emphasis on quantitative description. The chapters cover "ranging behaviour and territory," "diet and feeding behaviour," "daily activity patterns," "social organization," "calling behaviour," and "distribution and density." Chivers very systematically tallied data at regular time intervals while following individuals or groups through the forest from dawn until dusk, when they settled back into their sleeping positions. This made possible a rather clean analysis in which a large number of variables could be examined for their correlations with behavior. In fact, the study is a model of data collection. This was made possible by close familiarity with a few study areas (particularly a plot in the Krau Game Reserve at Kuala Lompat, central Pahang), and careful habituation of the animals to observers to permit continuous close observation.

The main findings of Chivers first of all confirm the unique characteristics so far found common to all hylobatids: near total arboreality in mature forest, a tendency to live in small territorial groups, and ritualized intergroup vocalizations in which the sexes play distinct roles. The siamang's vocalizations are spectacular, consisting of an elaborate succession of chattering barks, booming sounds and screams. There are also significant differences between siamangs and gibbons. The former subsist on a diet of mostly leaves, whereas gibbons consume mostly fruit. Siamangs also have smaller territories than gibbons, a paradox explained by the difference in food habits. They also seem to show less intergroup territorial aggression and call on fewer days (as yet unexplained).

This is a book for field primatologists rather than general readers, with its largely descriptive and generally boring graphs and tables of statistics. Data are presented with no discrimination as to importance or meaningfulness; interpretations and biological conclusions must apparently await the accumulation of much more comparative data. Chivers believes in collecting masses of data and then fishing for correlations and hypotheses, rather than the reverse. This has yielded many "significant" effects which must be regarded with some suspicion, since they are based on à posteriori hypotheses. However, we are still in a largely descriptive phase of primate ecology and behavioral study. I would refer general readers to the concise and interesting comparison between the siamang and white-handed gibbon in Chivers' summary article, "The Siamang and the gibbon in the Malay Peninsula" (p. 103-135 in Gibbon and Siamang, vol. 1, (D. W. Rumbaugh, ed.) S. Karger, Basel, 1972).

"The Siamang in Malaya" is nevertheless an important milestone in the study of this family of apes. The work promises to be particularly significant because it has been continued by Chivers and his colleagues from 1969 to this day. Long term studies of primate groups are few and vitally needed to answer important questions concerning individual social development, new group formation, migration, seasonal and longer term trends, and population dynamics. Chivers' work is already yielding some answers to these questions.

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