information, particularly on observed details of convective clouds in Chapters 7 and 8. These two chapters alone contain 397 references to various world-wide studies, and provide an excellent reference list for those new and even well-established in the field. A second notable feature is the description of observed phenomena presented in the appendices (a total of 33) at the end of many of the chapters. Finally, the book is well illustrated with many figures and 88 photographs which depict the various physical phenomena described in the text.

It is unlikely that this book will serve as the main textbook for a course in cloud physics, cloud dynamics or mesoscale aspects of clouds or cloud systems. Cost alone would prohibit its general use as a class textbook. Without prior training in dynamic meteorology, radiative transfer theory and cloud physics, an undergraduate would find many of the discussions hard to follow and would be overwhelmed by the sheer volume of the material. As a graduate-level text, however, the book is limited by the lack of theoretical depth. Much of the theory in cloud physics, radiative transfer theory and cloud dynamics is that which was current during the late 1950s and mid-1960s.

To the lecturer, the book will provide excellent, easily accessible material for preparing lectures in cloud physics and cloud dynamics. Ludlam's descriptions, together with the appropriate illustrations, give form to physical concepts and provide insight into the processes governing the behaviour of clouds and related phenomena in the atmosphere.

Because this book embraces a variety of observational information not available in other texts on cloud physics or atmospheric dynamics, it will be a valuable resource book for the serious student, researcher or teacher of cloud physics or cloud dynamics. □

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Spectroscopy for the neophyte

H.A.O. Hill

An Introduction to Spectroscopy for Biochemists. Edited by S.B. Brown. Pp.403. (Academic: 1980.) £18.40, $44.50.

THE avowed intent of the editor is to provide, in a single volume, a description of spectroscopic techniques at an advanced level appropriate to the non-specialist biochemist or clinician. How closely do the individual contributors approach this estimable, if unrealistic, goal in their presentations of "non-mathematical yet rigorous" accounts of particular techniques?

The "Introduction to Spectroscopy" by the editor provides the nervous clinician with a gentle, and certainly non-mathematical, survey of the major techniques, though the physical basis of the methods could be rather better explained. The following description of ultraviolet and visible spectroscopy by Dr Brown is clear and lucid, though I would have preferred to have selection rules discussed in terms of the probability of transitions taking place. Most spectroscopic techniques are best taught by illustrating their applications, and the spectra of amino-acids, nucleosides, nucleic acids, carotenoids, flavinoids and tetrapyrroles are briefly, but adequately, presented. By far the best part of the chapter is that concerned with applications to the analysis of biological materials.

G.R. Penzer provides a near-perfect pedagogical exposition of the principles of fluorescence — the only flaw being the inadequate number of examples — and the chapter on vibrational spectroscopy by P. Gans is well-balanced with most emphasis being placed, quite correctly, on the application of Raman, especially resonance Raman, spectroscopy. P. Bayley's account of circular dichroism and optical rotation is both rigorous and non-mathematical, is well illustrated and uses many well-chosen examples, though twice or thrice as many would not have been excessive.

R. Jones continues with a description of magnetic resonance spectroscopies. These are the most difficult techniques to explain, especially the EPR spectroscopy of metalloproteins. The temptation is to adopt the simplest description even when it is wrong. Thus, though crystal field theory as an *explanation* of the consequences of introducing metal ions into a non-spherical ligand environment died 20 years ago (some would say it was stillborn), it still infiltrates otherwise respectable essays.

The book is rounded off with chapters by E.J. Wood on atomic absorption spectroscopy and by A.J. Geddes on mass spectrometry which should be valuable to those intending to apply these methods for the first time. In short, this is a book that seeks to attain an impossible goal yet with much that is good in it. □

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Learning from nematodes

J. Hodgkin

Nematodes as Biological Models. Edited by Bert M. Zuckerman. Vol.1, *Behavioral and Developmental Models*, pp.321; Vol. 2, *Aging and Other Model Systems*, pp.306. (Academic: 1980.) Each volume $35, £19.60.

IN STUDYING any biological phenomenon, it is desirable to work on an organism which is simple, well characterized and amenable to experimental manipulation. For many purposes, nematodes satisfy these criteria, and consequently they have attracted much attention as model systems in which to examine a variety of problems in cell and developmental biology, neurobiology and ageing. One nematode species in particular, *Caenorhabditis elegans*, has been characterized in great detail over the past 15 years, and an enormous amount is now known about this animal. However, this information is scattered widely throughout the literature, or else remains unpublished, so a monograph reviewing research on *C. elegans* and related nematodes would be very valuable. These books only partly satisfy this need, although most of the first volume, and parts of the second, are devoted to work on the genus *Caenorhabditis*. Each of the 18