problems that the visual system must solve, and in many instances has suggested how it actually does solve them. Not one of the books makes any reference to the work of the late David Marr, perhaps the only genius to work on the psychology of vision since Helmholtz himself. Marr's work in fact started where Helmholtz stopped: Helmholtz rightly insisted that visual perception was mediated by a series of complex inferential processes, but he was unable to specify with any rigour what these processes were. The existence of the digital computer has allowed Marr and his associates to construct computational models of the visual system that have thrown a completely new light on how it must function. Unfortunately, his work is not easy to follow and too few psychologists have grappled with it: the only good popular account is to be found in J.P. Frisby's *Seeing: Illusion, Brain and Mind.*

Two of the publishers of the three books under review have served their authors badly. In *Perception: The World Transformed* some of the figures are unnecessarily hard to interpret (e.g. p.128), others have incorrect legends (e.g. p.190), and at least one name that appears in the index does not appear on the specified page or indeed anywhere else in the text. The sins of Oxford University Press are, however, comparatively venial compared with those of Houghton Mifflin. *Perception: An Applied Approach* is the worst designed book I have ever encountered. It can be read only with extreme difficulty since each page contains three columns of text with no justification of the right-hand margins; much of the information purveyed is contained in those horrid boxes so popular with American publishers, but Houghton Mifflin have plumbed new depths of idiocy by spreading a single box over as many as five different pages, with areas of normal text and figures spattered randomly around its edges; as though these faults did not make the reader's task sufficiently difficult, the book's designer has made it almost impossible to associate the figure legends with the relevant figure, even going to the length of placing figure and legend on different and non-facing pages. The format of the book is a triumph of bad design, a nice irony given that the book's content is intended to show how a knowledge of vision can improve the design of artefacts.

In summary, then, *Perception: The World Transformed* is an excellent introduction for the novice; *The Psychology of Visual Perception* is a good but conventional treatment and is nicely complemented by *Perception: An Applied Approach*, which includes much material not normally found in undergraduate textbooks. □

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Information in mind

Angus Gellatly

Cognitive Psychology. By R.L. Solso. Pp.499. (Harcourt Brace Jovanovich: 1980.) £10.95, $17.95. *Cognitive Psychology and Its Implications.* By J.R. Anderson. Pp.503. (W. H. Freeman: 1980.) £8.10, $15.

IN THE preface to his book, Robert Solso identifies two key questions raised by the information-processing approach to cognition: what are the stages through which information is processed? and in what form is information represented in the human mind? Although each of these texts addresses both questions, they differ in the emphasis given to them.

Anderson's major concern is the representation of knowledge, and much of his book is an exposition of recent models of long-term memory that employ a propositional format; indeed, he sees such models as the major achievement of modern cognitive psychology. The organization of the book reflects his commitment; peripheral stages of perception and attention are covered in a single 40-page chapter, after which interest turns to the evidence on knowledge representation. Only when his conclusions on this issue have been established does Anderson move on to apply them to the perennial problems of learning, memory, reasoning and language. By contrast, Solso's commitment is more to the methods of information-processing psychology than to a particular theoretical stance within that framework. His is the more traditional approach, starting with the detection of sensory signals and charting the flow of information into the processing system. Over 100 pages are devoted to reception and early analysis of stimuli, with consideration of memory in its varied manifestations forming the second part of the book, and higher-order cognitions the third. Both authors display an admirable familiarity with the vast literature. Anderson's clearly defined viewpoint lends his book a vigorous proselytizing air and a unity of purpose, but Solso, by allowing greater space to studies published earlier than the past decade, suggests a longer-term perspective. Anderson provides particularly good chapters on mental imagery, schemas, cognitive skills and deductive reasoning. Solso is also good on mental imagery and on attention, and he scores over Anderson by including a chapter on cognitive development.

On the debit side, the two books are open to a number of the same criticisms. Both are concerned almost exclusively with what cognitive psychologists do in the laboratory using undergraduate subjects and computers, rather than with cognition in any broader sense. Neither author makes more than passing reference to relevant neuropsychological findings, to the issues of individual and cultural differences, or to applied studies of reading. Perhaps, granted the assumptions they make, these are allowable omissions, but both authors advance staggering claims for future developments and applications of cognitive psychology that are in stark contrast to the well-worn examples of such applications that they can cite.

For teaching purposes, what are the relative merits of the two books? Solso perhaps provides the more general and easier introduction to cognitive psychology, Anderson is for the second- or third-level option course. □

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Entomological ethology

Stewart Evans

Introduction to Insect Behavior. By M. D. Atkins. Pp.237. (Macmillan, New York/Collier Macmillan, London: 1980.) Pbk $9.95, £6.50.

ALTHOUGH the value of studies in invertebrate behaviour is widely accepted, these animals still tend to be neglected in textbooks of ethology. Some general texts, such as those by Alcock (*Animal Behavior: An Evolutionary Approach;* Sinauer, 1975) and Manning (*An Introduction to Animal Behaviour;* Edward Arnold, 3rd Edn, 1979), do strike a satisfactory balance between different animal groups but others give the impression that almost all of the important research is on birds and mammals.

Clearly, students need access to a wider coverage of the behaviour of invertebrates, and Atkins's book goes a long way towards providing this for insects. In an admirably clear account, he concentrates on functional aspects of behaviour and, with well-chosen examples, illustrates both its complexity and variability. I believe that undergraduates will enjoy reading the book; they will find it informative, up-to-date and, in parts, dynamic. For instance, the chapter which includes a consideration of genetic aspects of behaviour underlines the way in which both traditional ethological techniques, such as those employed in Rothenbuhler's studies of hygienic and unhygienic honey bees, and entirely new ones, such as those involving the use of *Drosophila* mosaics, are making