

appropriate circumstances operate at a high-order level independently of its fellow. Although the right hemisphere seems to be largely, if not wholly, devoid of linguistic expression, it is nonetheless almost certainly unjustified to treat it, as does Professor Eccles, simply as a "computer" lacking any direct liaison with consciousness. No one who has watched a split-brain patient performing complex visual discrimination and recognition tasks processed wholly by the right hemisphere could possibly doubt the presence of consciousness in the sense in which the term is ordinarily used. It is difficult not to suspect that Professor Eccles's view in the matter is governed, in part at least, by extrascientific considerations.

This book has a glossary though no index. It should make stimulating reading for medical students and others seeking a concise and up-to-date account of several important aspects of contemporary neurophysiology. At the same time, its intentionally selective character will obviously limit its usefulness as a formal text. O. L. ZANGWILL

## Social wasps and loners

*Wasps: An Account of the Biology and Natural History of Solitary and Social Wasps, with Particular Reference to Those of the British Isles.* By J. P. Spradbery. Pp. xvi+408 (28 plates). (Sidgwick and Jackson: London, September 1973; University of Washington: Seattle, November 1973.) £8.50; \$17.50.

WHAT is a wasp? Dr Spradbery adopts a very narrow definition to include only the members of the Vespoidea, a group which consists of the familiar social wasps and a number of solitary species. In a recent work of very similar title (*The Wasps*, University of Michigan Press, 1970), Evans and Eberhardt take a much wider definition to include all aculeate, or stinging, Hymenoptera, with the exception of the ants and bees. Such a grouping includes the majority of solitary forms (particularly of the Sphecoidea), which have been studied by so many insect ethologists since the early work of J. H. Fabre. Of course, it is quite reasonable to take the more restrictive view, but even Dr Spradbery in his text uses the term frequently in a more general sense.

Taking the Vespoidea then as his group, Dr Spradbery gives us an excellent monographic treatment based mostly on the British species, but with widespread reference to other faunas and to literature otherwise difficult for the non-specialist to obtain. The first part of the book is devoted to a good general discussion of the group, with emphasis on structure and function. There follows a chapter on the solitary species, of the family Eumenidae, concerned mainly with comparative

behaviour studies. It is perhaps here that some comparison with the more diverse sphecoid wasps might have been included with advantage. The next eight chapters form the core of the book and are devoted to a thorough review of the behaviour, particularly in terms of nesting, foraging and social organisation, and the population ecology of the British Vespidae, the social wasps.

As would be expected from the author's previous publications, there is a first-class, balanced discussion of many problems, including the controversial field of caste determination. A chapter is devoted to the parasites, predators and commensals associated with wasp colonies. This necessarily is drawn from a wide variety of published records, at least some of which need judging with caution. Chapter twelve is entitled "The Impact of Wasps on Man" and is a useful summary, especially of the sting and its pharmacology. It may come as some surprise to discover that during the period 1949 to 1969, thirty cases were recorded of people in England and Wales who died as a direct result of being stung by wasps! The main part of the book concludes with two chapters of a less detailed nature, which discuss the 800 or so social vespoid species of the world and the possible paths and mechanisms of the evolution of such complex societies.

The book concludes with four very useful appendices. The first is concerned with the taxonomy of the British species and gives good illustrated keys for the identification of the twenty-nine known species. A further appendix gives helpful information on methods of studying, collecting and preserving wasps. The final appendix gives the first published distribution maps for all British species, compiled by the Biological Records Centre, Monks Wood. Clearly these are very incomplete, but their very inadequacy may foster an interest in the group, which is essential for the accumulation of further information.

The standard of line illustrations throughout the book is generally very high. The half-tone plates are in some cases less satisfactory. Most show live wasps or their nests, and others show structural details. A number of good colour plates are included, but those illustrating mounted specimens are rather disappointing. The individual insects are mostly too small to show useful detail and some are very poorly reproduced. Most unfortunately the colour and black-and-white plates are inconsistently laid out, with blank pages interspersed irregularly, for no apparent reason. The legends are often very difficult to associate with the correct figures, and sometimes even hard

to find.

In conclusion this is clearly a very valuable and exhaustive work which should be read not only by the small band of research workers interested in wasps, but also by a wider group of general ethologists and ecologists. It will without doubt for long be a standard work in its field.

M. F. CLARIDGE

## Straight dislocations

*Introduction to Anisotropic Elasticity Theory of Dislocations.* By J. W. Steeds. Pp. ix+274. (Clarendon: Oxford; Oxford University: London, May 1973.) £8.35.

IN this book Steeds presents a concise, very clearly written account of the elastic theory of straight dislocations in anisotropic media. He concentrates exclusively on those cases whose solution can be analytically expressed, and he shows that these comprise such a large number of cases that the algebraic effort is worthwhile. In short, Steeds 'professionalises' the subject so that a research student with the aid of this book should be able to make intelligent use of anisotropic elasticity, whereas before the book was available most research students (and their supervisors) would founder.

The book contains explicit solutions for a large number of commonly occurring dislocations, and a table at the end lists them so that one can see at a glance whether or not a particular problem is solved. Furthermore, a very clearly written chapter outlines the relationship between the two-dimensional (that is, straight dislocation) solutions and the three-dimensional solutions; it also covers dislocations in uniform motion.

The book is intended to be a reference work, and it has extensive tables of parameters for different crystals. As a reference book, it gains greatly from its clarity and strict deductive approach. As a textbook, it suffers somewhat from these features: students will not easily gain from it a feel for when anisotropic elasticity is important and when it is not; and one would perhaps like guidance on the use of computers to solve some of these problems. In my experience, it is possible to write a computer program which works reliably and which obviates the necessity for algebra or thought—although of course it does not give the kind of insight obtainable from analytic formulae. The computer program itself, however, requires an investment of time which will not pay off unless extensive calculations are envisaged—the one-off calculation is better done by algebra. So there is no doubt that any laboratory concerned with the properties of dislocations should have this book on its library shelves.

L. M. BROWN