

*Perspectives in Behaviour Genetics*. Edited by JOHN L. FULLER & EDWARD C. SIMMEL. Hillsdale, New Jersey: Lawrence Erlbaum (1986). Pp. xii + 278. Price \$36.00.

*Perspectives in Behavior Genetics* comprises six contributed chapters. In the first the editors provide an overview of trends in the subject since the publication of Fuller & Thompson's 1960 text. The remaining chapters give reviews of research programmes in reading disability, audiogenic seizures, visual preferences in Japanese quail, conditioning in *Phormia regina* and *Drosophila melanogaster* and human reactions to alcohol.

In chapter 2, DeFries, Vogler & Labuda bring us up to date on the Colorado Family Reading Study which set out to investigate familial transmission of reading disability. An interesting departure from earlier analyses is the use of the original psychometric scale scores for Reading and for Symbol Processing Speed rather than scores based on the first two principal components of the test battery. Only by reverting to the original scales can the phenotypic correlation between them be explored using bivariate path analysis; the principal components are, of course, uncorrelated and thereby spoil some of the fun. Readers will also be interested to read in the concluding paragraph that 'recent analyses . . . suggest that reading disability may merely represent the lower extreme of a normal continuum of development'.

Henry's chapter on audiogenic seizures (chapter 3) is a useful presentation of work in this area, but he reassures us that, in spite of numerous attempts, we know next to nothing about the genetics of such seizures. We can sense the dedicated researcher regretting the 'many investigator years [that] have been spent over the past decades in the search for the genetic mechanisms of audiogenic seizures in rodents'.

In chapter 4, Kovach gives a clear exposition of his work on colour preferences in Japanese quail. Along the way he takes great pains to show that for traits determined by probabilistic behaviour at literal or metaphorical choice points, binomial sampling variance may lead to low heritabilities for the observed behaviour even when individual differences in the probabilities are completely genetically determined. This is a straightforward point, but one of which it does not hurt to be reminded. Most of Kovach's chapter will be well known to readers of *Animal Behaviour*.

The contribution by Ricker, Hirsch, Holliday & Vargo in chapter 5 once again makes much of what I take to be Hirsch's concern that the procedures used to isolate learning mutants, *dunce* and so on, in *Drosophila* have used group rather than indi-

vidual testing. Some of their points are well taken, but for the most part Hirsch's group is now producing (and reproducing) margin notes to the main text which is being written elsewhere—by the researchers of whom they are most critical.

The final chapter, by Stabenau, reviews genetic factors in human reactions to alcohol. This is stronger on clinical discussion than it is on genetics, but might be a useful source for anyone wanting a framework on which to hang ideas about heavy drinking.

Taken together, this is an odd assortment of chapters and because of this the book as a whole is not headed for the best-seller lists. It is clearly not intended to serve as a textbook and the selective coverage means that it could not be used to teach a course. It should properly be treated as an addendum to Fuller & Simmel's earlier book, *Behavior Genetics: Principles and Applications*.

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## References

- Fuller, J. L. & Simmel, E. C. (Eds.) 1983. *Behavior Genetics: Principles and Applications*. Hillsdale, New Jersey: Lawrence Erlbaum.  
Fuller, J. L. & Thompson, W. R. 1969. *Behavior Genetics*. New York: John Wiley.

*Pheromones of Social Bees*. By JOHN FREE. London: Chapman & Hall (1987). Pp. xiii + 218. Price £17.50.

This is a book of good quality. The title may perhaps be somewhat misleading in that the book is not a comparative treatment of the pheromonal systems in the various groups of social bees. Instead it is predominantly about the honey bee, *Apis mellifera*. The pheromones of the many other social bees, like the stingless bees, the sweat bees, etc. have hardly been studied at all yet, and therefore it was easy for the author to add a paragraph or two about these bees at the appropriate places. When discussing mating, a behaviour that is not restricted to social organisms, the author does not make comparisons with mating behaviour in related insects; a comparative approach would have been useful here. On the other hand, the mating behaviour of the bumble bees has been given a chapter to itself at the end of the book. Bumble bee colony pheromones and foraging pheromones are treated in a separate chapter of six pages.

The book gives a fairly complete description of our knowledge of honey bee pheromones. The author mentions nearly all the publications on the subject. Almost 500 are included in the references.

This book emphasizes that pheromones play a major role in the honey bee colony. They are produced in various exocrine organs of the queen, the worker and the drone; these secretions are complex and vary over time. Investigators have studied various aspects of these pheromones such as their chemical nature, their separate and combined functions in the encounters between the pheromone-producing and the recipient animal which subsequently may become the carrier of the message, and also their long-term effect on the way in which the community functions in response to environmental cues.

As the main theme of the book, Free has chosen the effect of pheromones on separate functions. We therefore find chapters on themes such as: communication of a queen's presence; inhibitory effect of queens on queen rearing; control of worker ovary development; laying workers; brood pheromone, etc. This follows in the tradition of the Rothamsted Experimental Station, where Free, Butler, Simpson, Williams and many others have done such excellent work on various aspects of the honey bees' social life. However, Free's treatment of the subject leads to a certain amount of repetition and overlap, for one pheromone often plays a role in several of the functions. In my view the book would have benefited from a final chapter in which all the information on the detailed aspects is integrated. In this way the author could have, as it were, resynthesized the colony. One cannot escape the impression that some essential features of these communication systems, such as the role of learning, remain to be explored. A final chapter of the kind suggested would therefore have been rather speculative, for not only do we have insufficient knowledge of the ways in which and among whom the various kinds of information are distributed, but also very little is known about the higher levels of integration. Free, however, is not a man given to speculation; he prefers to tread on safe ground. His book, therefore, is a meticulous and fair account of what we know. It is a work of reference, a description of the state of the art. As such it is highly recommended.

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*Readings from the 19th International Ethological Conference.* Toulouse: Privat (1986). Price 98F

each. *Vol. 1. Relevance of Models in Ethology.* Edited by RAYMOND CAMPAN & RENÉ ZAYAN. Pp. 1-66. *Vol. 2. Ethology and Psychology.* Edited by JEAN LECAMUS & JACQUES COSNIER. Pp. 1-182. *Vol. 3. Quantitative Models in Ethology.* Edited by PATRICK W. COLGAN & RENÉ ZAYAN. Pp. 1-148. *Vol. 4. Behavioral Ecology and Population Biology.* Edited by LEE C. DRICKAMER. Pp. 1-150. *Vol. 5. The Individual and Society.* Edited by LUC PASSERA & JEAN-PAUL LACHAUD. Pp. 1-150. *Vol. 6. Genetic Approaches to Behaviour.* Edited by JEAN MÉDONI & GÉRARD VAYSSE. Pp. 1-150. *Vol. 7. Orientation in Space.* Edited by GUY BEUGNON. Pp. 1-126. *Vol. 8. Behavioural Rhythms.* Edited by YVON QUÉINNEC & NICOLE DELVOLVÉ. Pp. 1-124. *Vol. 9. Ethology of Domestic Animals.* Edited by MARTIN NICHELMANN. Pp. 1-138.

The 19th International Ethological Conference was held at the Université Paul Sabatier in Toulouse, France in August of 1985. The meeting, which was attended by more than 800 scientists, lasted for 10 days and included several hundred papers and posters. The result was a very enjoyable and stimulating conference. Some 120 of these presentations have now been published in nine volumes, based loosely on the topics of the plenary sessions.

Each volume has a short account of its aims on the cover but no statement is made about the reasons for publishing the whole series. If the aim was simply to provide a record of the proceedings of the conference, then the series can be deemed a success (although two plenary sessions and several impressive individual contributions are not included). If the aim was to put together a useful collection of diverse behavioural facts, then once again it has succeeded (although the quality of the work described is very variable). However, if the aim of publishing these readings was to produce integrated accounts of key topics in behavioural science, then the exercise has been less than successful.

The series suffers from all the (well recognized) problems of published conference proceedings. From the outside the volumes are uniform and pleasant to look at, with attractive and pertinent illustrations. The cover designers are listed as Georges Gonzales, Philippe Deschaux-Beaume, Guy Beugnon, G erald Vaysse and Gaston Richard, who are to be congratulated. However, on the inside the volumes are variable: in type of print (the reader is confronted with a tiresome mixture of dot matrix print, typescript and laser print), in format (some volumes have an introduction, others do not; some are divided into sections, others are