

## Book review

### “Pheromones and Animal Behaviour—Communication by Smell and Taste”

Jacques Pasteels and Désiré Daloze

Tristram D. Wyatt, Cambridge University Press, 2003, 391 pp.

In his preface, the author states: “For perhaps the first time, we can now investigate questions at every level: molecular, neurobiological, hormonal, behavioural, ecological, and evolutionary”. The challenge of surveying these different areas of Science has been brilliantly met by Dr Wyatt, who should be congratulated for this remarkable synthesis. The multidisciplinary coverage is indeed the most striking characteristic of this book, and throughout, the author displays a remarkable knowledge of these different topics.

In the two first chapters, “Animals in a chemical world” and “Discovering pheromones”, he discusses general topics like the different definitions of pheromones, the classification of chemical signals, the evolution of chemical cues into signals, etc and the methods used to collect, analyse, and identify pheromones. The next six chapters deal with the different pheromone categories, namely, sex pheromones, aggregation and host-marking pheromones, scent marking and territorial pheromones, pheromones involved in social organisation, recruitment pheromones, and alarm pheromones. The coverage is well balanced and illustrated by numerous examples taken from insects, mammals and other types of organisms. Chapter 9 is devoted to pheromone perception, and signal transduction. In chapter 10 the search strategies for finding odour plumes, trails or gradients and how the organisms receiving the message are orienting themselves towards the pheromone source are discussed. The next chapter

describes how the pheromone communication systems can be exploited by other organisms, whether conspecifics, predators or parasites. Then the use pheromones in pest control management is surveyed, and finally the present evidence in favour of the existence of human pheromones are summarized. A selected bibliography is provided as well as suggestions for further reading at the end of each chapter.

This is a well balanced text, which benefits from a very clear writing style and well-planned illustrations. We have only detected a few spelling errors, and these appear most of the time in the names of chemical compounds. Unfortunately, in Appendix A2 entitled “Isomers and pheromones”, there are several definitions which are not rigorous or even erroneous, e.g. “Chiral molecules are identical except that they are mirror images of each other.” or “The L, D naming system is based on the observation of the direction in which polarised light is shifted but does not tell us the actual position of all atoms in space around a molecule”. The latter statement makes a confusion between the D, L system for naming absolute configuration and the d,l representation of optical activity. Moreover, on page 306 the figure which is intended to represent the two enantiomers of carvone is also flawed since no stereochemical descriptors are drawn.

However, these are small blemishes when put against the remaining of the book which should be warmly recommended to all practitioners and beginners in this area.

[the errors, which alas slipped through the proofing process, are corrected in later printings. The corrected Appendix is a free download on [www.online.ox.ac.uk/pheromones](http://www.online.ox.ac.uk/pheromones) ]