Review

Danks, H. V. (ed.) 1994: Insect Life-Cycle Polymorphism. — Kluwer Academic Publishers, Dordrecht, The Netherlands. ISBN 0-7923-2828-0.

This book is the fifth in the uninterrupted series of proceedings of life-cycle symposia held during International Congresses of Entomology (1976: Washington, DC., 1980: Kyoto, 1984: Hamburg, 1988: Vancouver, 1992: Beijing). The editor has succeeded in inviting additional writers so the book is more than a collection of random papers. It well represents the state of art in this classical multidisciplinary field of entomology. It is also obvious that the symposia themselves are a successful idea and an important component in the adaptation of this field of study into often hostile environments.

Danks himself makes a brave and successful attempt at classifying the field. Especially useful is his list of temporal and energetic components of insect life cycles: this is a useful guide for those who need to measure the components of fitness in complicated real-life situations. It is fortunate that the modern classifications are no longer pressured into using scholarly Greek–Latin terms. Danks has also written the concluding remarks at the end of the book. The chapter is thoughtful and well reflects the present situation. Diversity is accepted as the main characteristic of the field. There is no standard insect, no standard climate, no standard adaptation. Sometimes I think that a standard insect would be a prima idea!

Sören Nylin writes about seasonal plasticity in butterflies. This paper is certainly useful and interesting for Finnish readers. Iwasa *et al.* have a purely theoretical chapter about seasonal timing, and the carabids of Teiji Sota also seem to understand quite a lot of algebra to keep themselves fit and fresh along climatic gradients. Takafuji has, in addition to a good theoretical approach, done plenty of work on genetic variation in the diapause characteristics of *Tetranychys urticae*.

Mark Scriber describes the life of *Papilio glaucus* and *Papilio canadensis*. He demonstrates that the majority of adaptive differences between these two parapatric species is controlled by genes which are sex-linked. This article is very useful reading to all those working with questions like incipient speciation or hybrid zones. Tanaka describes the seasonality of *Locusta migratoria* in Japan.

Cornelia Grüner and Sinzo Masaki describe the life of *Mamestra brassicae* in Japan. If I am right, this is the first time that latitudinal variation has been carefully observed and compared by the same investigators between areas as different as Europe and Japan. However, the question "Do the parallel eastern and western clines for summer diapause share the same genetic background?" still remains to be answered.

Di Russo, Carchini and Sbordoni describe the life history of *Dolichopoda* cave crickets. Populations living in natural caves have no seasonality, while the human-made mines support stocks which are demographically strongly seasonal. The authors suggest that these differences are adaptive. Hayashi presents observations about 15 populations of four species of *Protohermes* (insects with predatory larvae living in streams). Prey availability is connected with other life-history traits.

The conference was held in China, and there are two papers by Chinese authors. Shu-Sheng Liu reviews the information about alatae production in aphids. Wu *et al.* describe wing dimorphism and migration in *Nilaparvata lugens* (brown planthopper).

Guo-rui Wu organized the symposium together with Sinzo Masaki and Wolfgang Wipking. It may be of interest to know that the proceedings publication of the first symposium in this series [Hugh Dingle (1978) Evolution of Escape in Space and Time], was translated and published in China in 1984.

Topp presents a huge amount of data about Staphylinoidea living in unstable environments. The paper must be interesting especially for those who are familiar with all the species studied. For an outsider, a study of the seasonality of a guild is interesting as such.

Wipking and Mengelkoch also study a guild, 14 species of *Erebia*, which have been synchronous odd-years-fliers since 1918. This is a topic which at present interests several Finnish entomologists. *Zygaena* species are able to develop in one or two years, but they have not developed alternate-year patterns. This article alone is a good enough reason to buy the volume for each biological library in Finland, not to mention several private collections.

The whole book is good, typically a gold-mine of *biological* information organized in a good taxonomic framework. However, it is surprising that no genes responsible for any seasonal adaptations have yet been identified at molecular level. Even botany is going fast in this direction: the molecules controlling flowering and cold resistance of *Arabidopsis* are already in textbooks.

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