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Book Review

GRESSITT, J. LINSLEY (editor). 1967. Entomology in Antarctica. American Geophysical Union. Library of Congress Catalogue No. 67-62159. Volume 10, xii + 395 pp., many figs. and photographs. \$17.00 U.S.A.

This book has a large informative introduction by the editor, and then is divided into two major sections, Systematics and Ecology, for the text.

The Introduction contains five parts as follows: History of Entomological Explorations in Antarctica; Zoogeographical Summary; The Fossil Record; Dispersal; and Classification.

Entomological exploration began in 1897-1899 with the "Belgica" Expedition under de Gerlache and is continuing today. The "Belgica" Expedition brought back specimens of three species of springtails, a wingless midge, specimens of six species of mites, a tick, and specimens of four species of chewing bird-lice. Up to and including 1967, Gressitt lists 130 species and subspecies (a few are uncertain identifications or records) of terrestrial arthropods in 68 or 69 genera belonging to 29 families in 10 orders, and states that more new species will be found. Only one marine mite is mentioned by him. The distribution of each species is given with the list in tabulated form. The Zoogeographic Summary is short but clear. The Fossil Record is one beetle, *Grahamelytron crofti* Zeuner, of doubtful family association, and a few insect wing fragments. Gressitt states that the main dispersal methods available to insects appear to be winds and birds. The short Classification at the end of the Introduction is but a key to the orders and some families and seems a bit out of place. I feel that it should have been completed to include all the known arthropod fauna of Antarctica. It is not very useful in its present form.

The Systematics section treats the Acarina, Collembola, Mallophaga, Anoplura, and Diptera.

The Acarina are represented by 94 species in the suborders Mesostigmata (mesostigmatic and nasal mites); Metastigmatia (ticks); Prostigmata (marine and terrestrial trombidiform mites), Astigmata (sarcoptiformes), and the Cryptostigmata (oribatid mites). Hunter discusses the mesostigmatic families Rhodacaridae and Laelapidae. He provides neither key nor diagnoses for all the species. Wilson discusses the remaining mesostigmatic families Rhinonyssidae and Halarachnidae (nasal mites) and the metastigmatic Ixodidae (ticks). He provides diagnoses and drawings for the mites, and keys, diagnoses, and drawings for the ticks. There are no new species noted. Strandtmann discusses the terrestrial prostigmatic mites. He provides a key to all the Antarctic species of free-living mites. Brief diagnoses are provided for the eight previously known species and detailed diagnoses and illustrations are provided for the 14 new species. The known distributions are cited. Newell discusses the marine prostigmatic mites, the Halacaridae. Twenty-eight species are recorded from south of 60° south latitude. One new species is described and illustrated. Keys are provided for all the genera and species, and illustrations for the above mentioned species. Newell gives an interesting account of the family Halacaridae in the polar regions. Atyeo and Peterson discuss the astigmatic mites, which are represented by Procotophyllodidae and Avenzoariidae. Some illustrations are provided. Keys are provided for all genera and species. Wallwork discusses the cryptostigmatic mites. He lists 18 species and subspecies, three of which are new and provides a key to the species. He discusses briefly the endemic continental, the South American, and the circum-Antarctic - Sub-Antarctic elements of the Oribatidae.

The Collembola are represented by 17 species, three of which are new, in 13 genera of four families in two suborders. Wise provides a key to the species and illustrations of diagnostic characters of the new species. He discusses the history of collections of Collembola in Antarctica, and distribution and origin of this fauna.

The Mallophaga and Anoplura are discussed together, but in two parts. The first, by Clay, is a short paper on those Mallophaga parasitic on penguins. A key is provided to all the known species. The second paper, by Clay and Moreby, provides keys and locality lists of Mallophaga and Anoplura.

Wirth and Gressitt end the Systematic section with the Chironomidae. They discuss the two known species, one of which is apterous, the other winged. Data on distribution are given.

The Ecology section provides data on the biology and distribution of selected species. Janetscheck introduces this section with a broad, but thorough, discussion of Arthropod ecology of south Victoria land, and a specific discussion on growth and maturity of a springtail, *Gomphiocephalus hodgsoni* Carpenter, from the same region. Many graphs, charts and photographs are included. Gressitt and Shoup follow with a discussion of the ecology of several free-living mites in the north Victoria land, and Gless with short notes on the biology of another mite, again from the same region. Wise and Shoup discuss some Collembola distributions in relation to transects at Cape Hallett, and Tilbrook discusses arthropod ecology in the Maritime Antarctic. Strong discusses the ecology and habits of the free-living arthropods at Palmer Station, Anvers Island, and Gressitt follows with notes on arthropod populations in the south Shetlands, the Antarctic peninsula, and south Orkneys area. Murray, Orton, and Cameron end the book with a very short paper on the only Antarctic

flea, covering distribution, taxonomic description and biology.

As the editor states in the Preface, "This volume is the first extensive assemblage of studies on the entomology of Antarctica." This is true, and it is well done. However, with just a little more planning, it could have been even better. For instance, the division of the information about the Mallophaga and Anoplura into two papers is needless and wasteful. The figures for both papers are at the end of the second paper, and not with their respective ones. The division apparently came as a late afterthought, with the result that there is a problem in the key to the mallophagan genera, and a taxonomic problem. The genus *Austrogoniodes* Harrison (1937) is not provided for in the key to the mallophagan genera in the second paper, and two new species described by Clay in the first paper, *A. gressitti* Clay 1967, and *A. keleri* Clay 1967 are in the second paper as *A. gressitti* Clay n. sp., and *A. keleri* Clay n. sp., despite the fact that they were described in the first paper.

Some of the ecology papers could have been joined together, such as those by Strong and Gressitt, to make the information more useful and to thus avoid some contradictions. For instance, Strong writes that the eggs of *Tydeus tilbrookii* Strandtmann (1967) have not yet been encountered (page 371), yet Gressitt describes them (page 382).

I feel that there should have been some discussion of the single Antarctic flea in the Systematic section.

It is interesting to note that only one of the acarologists (Newell) mentions the publication by Dalenius, The Acarology of the Antarctic Regions, in Biogeography and Ecology in Antarctica (van Miegheem and van Dye, editors), Junk, The Hague, 1965.

As Gressitt gave a good coverage in the Introduction on the history of Antarctic entomology, I feel that there is some unnecessary repetition in several of the systematic papers. However, for separate papers in standard scientific journals, the introductory history for each group would have been well placed. I think that some of the ecology titles should have read "Habitats" rather than "Ecology".

The book lacks an index, and for the ecological parts this is sorely needed, as there is overlap of discussion of many species.

The proof reading for Entomology of Antarctica was well done; most of the illustrations, figures and graphs are of high quality, though some small graphs are a little "busy" while others are unnecessarily large and with little information. The printing is clear and of a pleasant reading size. The binding is well done with cloth, and the paper is high gloss kaolin (which might not be a good feature in humid climates).

I believe that this book is worthwhile in spite of the above mentioned shortcomings and should get wide circulation. The price, I think, is a little too high.

The value of this book to biologists will increase significantly when it becomes possible to compare the Antarctic insect fauna with its Arctic counterpart. This will be possible when the systematic and ecological work done under the program "Studies on Arctic Insects" by the Canadian government is completed and published.

Robin Leech