chapters. Likewise, the use of author of the taxon varies; the author of the species is recorded in the legends in 9 chapters and Part One of chapter 21. The author of the genus is given in the keys of three chapters, in the key of Part One of chapter 21, and in the key to freshwater larvae of Chironomidae. Discrepancies exist between the information in the keys and in the summary tables in most of the 17 chapters. These may include the number of genera or the use of other taxa, such as subgenera, tribes, and subfamilies.

This revised edition of aquatic insects in America north of Mexico has been significantly updated and expanded. The authors cite current, worldwide literature. Furthermore, they provide a taxonomic and subject index. In the concise overview of aquatic insect ecology, sometimes material is presented without explanation and occasionally there is a mistake in reporting information from a paper. Despite the errors in the keys, this book will facilitate study in aquatic insect courses in North America. It also could be used as a supplementary textbook in other courses, such as insect ecology, invertebrate zoology, limnology, fisheries, wildlife, and water quality. The revision should allow lay as well as diverse professional groups to categorize collections of immature and adult insects and to associate ecological information with the specimens. Entomologists interested in aquatic insects will find the book useful as a reference on taxonomic literature, phylogeny, morphology, ecology and distribution, as well as collecting and rearing techniques.

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Evaluating Mites as Control Agents

*Biological Control of Pests by Mites*, Special Publication 3304
M. A. Hoy, G. L. Cunningham & L. Knutson [eds.]
Publications, Division of Agriculture and Natural Resources, University of California, Oakland, 1983, 185 pp., $15.00

This book comprises the proceedings of a working conference held at the University of California, Berkeley, in April 1982. The work conference participants reviewed attributes desired in biological control agents and discussed special attributes and limitations of acarines (Section I). The participants also evaluated broad acarine groups for their potential as bio-
logical control agents, or evaluated specific taxa in such diverse habitats as forests, deciduous orchards, dung, aquatic systems, and weeds (Section II). In Section III, the work conference participants evaluated what is needed in basic and applied research to enhance the use of mites as biological control agents and, after discussions, made specific recommendations for better basic and applied research needs.

One area lacking in this book is a section on the use of phytoseiids in biological control of tetranychids in the glasshouse industry. However, the reviewer concluded that this was by design rather than oversight. One of the editors, M. A. Hoy, has only recently (1982) edited another book Recent Advances in Knowledge of the Phytoseid, in which this area is thoroughly reviewed.

Another aspect of this book is that it is largely limited to the North American continent in its coverage. The book has been limited to only one overseas contributor, David Rosen from Israel. Nevertheless, conference objectives were largely achieved including evaluating current state of knowledge of mites as biological control agents; increasing the awareness of biological control workers to the potential value of mites; increasing the awareness of acarologists to the potential for practical use of their studies of carine systematics, biology, and ecology; and addressing the needs of action agencies such as the Animal and Plant Health Inspection Service—Plant Protection and Quarantine.

The focus of the book is on Section III—Research Needs in Biological Control. In this section, taxonomic and other needs in basic research on biological control of insects and mites are reviewed. Then long- and short-term research needs for action programs are reviewed. Following this review are specific recommendations on future basic and applied research needs on mites as biological control agents.

This book is highly informative and is essential as a reference source for students of biological control, specifically those students researching the use of mites as biological control agents. The index enhances its value as a reference source.

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Newfoundland Biogeography and Ecology

Biogeography and Ecology of the Island of Newfoundland.
G. Robin Smith [ed.]
(North American distributor: Kluwer Boston, Inc., 190 Old Derby St., Hingham, MA 02043)

This book is a collection of contributions of various specialists, much in the manner of the proceedings of a symposium but with individual treatments averaging about 45 pages. The longest collection addresses aquatic insects and occupies 86 pages. Included in the book are maps, charts, graphs, 145 photographs, and a 27-page systematic index as well as a general index. More than 1,200 references afford the reader access to most if not all previous literature for the topics covered. Topics covered include geological evolution, soils, bryogeography, marine ecology and zoogeography, introduced terrestrial insects, and aquatic insects.

The subject treatments are uneven, varying according to the interests, knowledge, and availability of authors, as would be expected. Some of the contributors are outstanding authorities in their fields, and much of what they present is based on original research. For others it was more a matter of assembling published data, observations, and conclusions from other sources.

A disproportionately large number of insects introduced from Europe to North America have entered through the Atlantic Provinces. One of the two entomological chapters is appropriately devoted to an account of introduced species in Newfoundland. This is well documented, with 97 references, and is a useful compilation. However, the author does not distinguish properly between species introduced by man and those that are seasonal immigrants or transients native to North America. The latter are not introduced species in the usual sense and should have been listed separately. Also, the list seems curiously incomplete, although I can speak only for Lepidoptera. Omissions in the introduced category include Leucania comma (L.), Hydraea micacea (Esper), Amphipyra tragopoginis (L.) (Noc-tuidae), and Tbera juniperata (L.) (Geometridae), and in the seasonal-immigrant category, the armyworm, Pseudaletia unipuncta (Haworth), Platysenta sutor (Guéneé), Catocala ilia (Cramer), for which there is no native food plant (Noc-tuidae), and four butterflies: Colias eurytheme Boisd, Vanessa atalanta (L.), V. cardui (L.), and Polygonia interrogationis (F.). All but the last were recorded in an earlier publication by the author. I suggest that readers concerned with potential pests of northern cereal crops or rangeland take note of the antler moth, Cerapteryx graminis (L.) (Morris's Fig. 2). This grass feeder from northern Europe is established on the island of Newfound-land and might be troublesome if it spreads and adapts to the North American mainland.

The chapter on aquatic insects incorporates complete checklists of species for all orders except Trichoptera and Diptera, which are summarized by family or habitat type only. The classification and ecology of freshwater habitats are covered, the distributions of listed species are given, and for some groups many new records are listed. Four regional endemics, a dragonfly, two beetles, and a moth, are identified—surprisingly few relative to most other groups; however, the aquatic insects are an ecological rather than a taxonomic group. This is a well-prepared, authoritative account of the aquatic insects and the ecological bases of their distributions, but the authors agree that more collecting and more detailed taxonomic investigations are needed.

What I miss most in this book is a more