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Book Review

HABU, A. 1973. Fauna Japonica. Carabidae. Harpalini (Insecta Coleoptera). Keigau Publishing Company, Hagiwara Building, 3-1, 2-chome Sarugaku-cho, Chiyoda-ku, Tokyo, Japan. xiii + 430 pages, 782 test figures, plates I-IV (colored), plates V-XXIV (black and white). Price \$50.00 USA.

This volume describes in English the harpaline fauna of Japan including adults of 101 species arrayed in 17 genera and 4 subtribes, and larvae of 28 species representing 7 genera. Keys are provided at appropriate places in the text to adults of all taxa. The known larvae are treated in a single key near the beginning of the volume.

Each taxon is adequately described to allow identification of its members, a task eased by illustrations of habitus provided in the plates, and by text figures which illustrate various structures including mouthparts, legs, ovipositors and male genitalia. Japanese vernacular names are given for each species. General distribution of each species and type localities of new species are indicated. For many species notes are included about food habits and life history. For genera and subgenera type species are listed. Synonymies and abbreviated literature citations are presented in the text, and complete citations in the "Literature" section. An index to scientific and vernacular names follows the text.

The illustrations are excellent, and the artist who prepared the colored illustrations, Mr. T. Sekiguchi is to be congratulated for the high quality of his work. However, it would be desirable to include with each some indication of the size of the figured insect. The paper, printing and binding are of the same high quality which characterizes the earlier volumes in this series. However, the overall excellence of the work is marred by spelling errors most of which could have been avoided had the manuscript and proofs been read by an entomologist whose native language is English.

The taxonomic treatment is conservative and sound. This work can be easily integrated with recently published treatments of geographically more or less adjacent harpaline faunas: Darlington (1968, The Carabidae of New Guinea, Part III, Bull. Mus. Comp. Zool., 137: 1-253) and Lindroth (1968, The ground-beetles of Canada and Alaska, Part 5, Opuscula Entomologica, Supplementum XXXIII, pp. 649-944). No new genera are described and the few new subgenera seem well founded, each on a distinctive combination of several character states. The subgeneric category is consistently used, and in the more diverse genera the "species group" is used as an infrasubgeneric category.

This volume is an annotated catalogue, useful for identification and as a compendium of biological information about Japanese harpalines. However, the author makes no effort to analyze his data in terms of phylogenetic or biogeographic theory, nor does he contribute much to harpaline classification, beyond brief reference to his reasons for combining the genus-groups Harpali and Selenophori. For the student of carabids and for the general student of diversity interested in acquiring an understanding of the Japanese fauna, maps of species ranges would have been useful and informative, and for the student of harpaline classification drawings of the everted internal sacs of the male genitalia would have provided much sorely needed data. This is especially true for the genus *Harpalus*. Lindroth (cited above) showed the value of the armature of the internal sac as a tool in classification. It would have been interesting to compare with Lindroth's treatment of North American *Harpalus*, a similar study of the Japanese species of this genus. In this connection, one valuable point made by Habu relates to the possible over-emphasis placed by Jeannel and Lindroth on the position of the apical orifice of the male median lobe. The latter authors include in *Harpalus* only those species with the apical orifice left-lateral in position. Habu does not give special weight to this feature, and includes also in *Harpalus* species with the apical orifice dorsal in position. Careful evaluation of these conflicting viewpoints will be

required by future workers on classification of *Harpalus*.

Of special interest to the student of historical zoogeography would be the genus *Trichotichnus*, represented in Japan by 27 species, 24 of which seem to be endemic. The latter number represents nearly half of the total harpaline species confined to these islands. Data obtained from the distribution patterns and relationships of the *Trichotichnus* species might be informative about the history of the Japanese biota when linked to data about Pleistocene climatic events, past inter-island connections and island-mainland connections.

Vestiture of the male front tarsus provides for the Japanese fauna, as for all other faunas to date, the best diagnostic character to distinguish between the subtribes Anisodactylina and Harpalina. Thus, it is troublesome to identify females not associated with males. A second troublesome detail which emerges from examination of Habu's identification systems is the sequence in which the larvae key out. Their diagnostic characteristics do not seem to indicate the same groupings as do the adult characteristics, and this suggests that larval characters might be of limited value in improving classification of the Harpalini. These points are not criticisms of this volume. Rather, they indicate difficulties inherent in working with harpaline carabids.

The subject of geographical variation, of great interest to students of diversity, was seemingly ignored except for an effectively illustrated treatment of *Platymetopus flavilabris*, based on samples from localities throughout the range of this Oriental-eastern Palaearctic species.

In spite of the high cost of this volume and coverage in general being restricted to simple descriptive statements, its technical excellence commends it to general coleopterists interested in the Asiatic fauna as well as to carabid specialists. Dr. Habu is to be congratulated for presenting such a fine study of one of the more complex and difficult groups of carabid beetles. He is also to be thanked for writing in English by those, such as myself, whose limited reading abilities confine us to the literature of a few Indo-European languages.

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