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### Book Review

HABU, AKINOBU. 1967. Fauna Japonica. Carabidae, Truncatipennes Group (Insecta: Coleoptera). Tokyo Electrical Engineering College Press, Hakushin-Sha Printing Co., Ltd., Tokyo, Japan. 338 pp. + xiv, 527 figs., XXVII plates, some in color. Cloth bound. \$20.00 USA.

This work deals with the heterogeneous assemblage of ground beetles with truncated elytra. In Japan this includes 109 species arranged in 43 genera of the tribes Odacanthini, Hexagoniini, Pentagonicini, Masoreini, Lebiini, Zuphiini, Dryptini, and the subfamily Brachininae.

For each species, Habu gives the common Japanese name, an extensive synonymy, a synoptic description and a statement on geographical distribution. Following the generic descriptions, notes are provided on biology and references to larval descriptions are given.

The text is in English, however, in many places it is confusing and some errors exist. This work seems to have suffered much in translation perhaps because of poor editing. For example, on page 2 the first sentence after the introduction states "The head is generally wider than the pronotum, but in the Odacanthini and the Dryptini it is narrower than this". In fact, the opposite is true. Lesser mistakes which are certainly the result of mistranslation occur throughout the text.

The illustrations are excellent and are certainly one of the outstanding features of the book. Almost all characters of taxonomic importance have been illustrated with fine line drawings by the author. The colored plates by Mr. T. Sekiguchi and the black and white plates by the author have been superbly drawn and reproduced. The only criticism I have of the illustrations deals with the figures of the male genitalia. The structure of the internal sac of the aedeagus is shown in only its inverted position. In species that lack well-defined sclerotized fields on the internal sac, this is completely satisfactory. However, many species possess characteristic arrangements of spines and sclerites that are often very useful for identification and classification. Madge (Quaest. ent. 1967

(3): 139-242) made good use of this character in his revision of the North American species of the genus *Lebia*. Habu indicates, through the use of stippling, that such structures are present in the internal sacs of many of the Japanese Truncatipennes. However, as the relative positions of the fields in the internal sac vary with slight differences in inversion, the most satisfactory method of studying this structure in a uniform manner is to completely evert it. In this way the fields are readily observable and their relative sizes and positions can be easily determined.

Keys are provided as an aid to identification and as a summary of characters used in erecting classifications. The keys to the species of the various genera appear to be straightforward; each couplet consists of a pair of rather distinct alternatives. However, the keys to the higher taxa, especially the supra-generic groups, are much more difficult because the alternatives presented are less distinct. These keys, which are apparently a summary of the classification, are to some extent based on variable characters and for this reason present difficulties in defining some higher taxa. An example of this is shown by the classification provided for the subtribes of the Lebiini. Here the principal characters that Habu has used are the structure of the legs and mandibles. The structure of the leg is related to the habitat of the insect. For example, most arboreal carabids possess dilated legs and tarsi, an adaptation that increases the area of contact between the insect and the surface it is climbing and, hence, providing better traction; physical considerations indicate that a slender, longer leg is more suitable for a cursorial animal. Within the Lebiini, the various subtribes tend to be adapted to a particular habitat. For example, the Callidina is primarily an arboreal group and shows adaptations for an arboreal existence in the structure of the legs. On the other hand, the terrestrial genus *Anomotarus* Chaudoir possesses all the characteristics of the more typical members of the Callidina except that its tarsi are slender and lack dense ventral setose pads. Because of this, Habu chooses to separate this genus from the Callidina and places it in a new subtribe. Habu's Callidina may be homogeneous as regards the structure of the legs and mandibles, but the female genitalia, mouthparts -- especially the ligula and mentum, and general habitus suggest that the subtribe Callidina is a heterogeneous assemblage and should be redefined, perhaps by placing *Anomotarus* Chaudoir and those callidine genera that possess styli with setose apices in the Callidina s. str. and by removing those genera which possess other forms of female ovipositor to one or perhaps two groups of subtribal rank. This proposed rearrangement provides more homogeneous groups, and I think each of these groups is likely to be monophyletic, and thus natural in a phylogenetic sense.

Species whose members are varied in their color pattern have been illustrated but aside from this, little account has been taken of variation. Subspecies have been recognized in several instances and while criteria for recognizing subspecies have not been given, the author appears to follow currently recognized practice. What is surprising, however, is his formal recognition of "forms". He has described *Lebia bifenestrata* form *ogurai* new form in addition to recognizing the "typical form" and the

"form *lucescens*". All of these "forms" appear to be sympatric and are included in the normal intraspecific variation found in this species. This is a regrettable regression to typological thinking.

This work forms one of the most thorough treatments accorded a group of ground beetles. The morphology of the insects dealt with appears to have been studied in a most careful and painstaking manner. The female ovipositor, a structure that has frequently been overlooked by previous workers, has received detailed study by Habu, who adequately demonstrates the potential of this organ in further taxonomic work. It is unfortunate that Habu himself has not used the possibilities of the data he presents. Few statements are devoted to a discussion of relationships existing among the higher taxa. The classification is traditional even though certain of Habu's data suggest that a modification is necessary of certain groups such as the subtribes of the Lebiini.

Habu has certainly provided an excellent manual for the identification of the species of the *Truncatipennes* group of Carabidae of Japan. Unfortunately this work narrowly misses being one of the major contributions to the understanding of the higher taxa of this large and very complex group of insects.

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