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BOOK REVIEW

HABU, A. 1978. Fauna Japonica. Carabidae: Platynini (Insecta: Coleoptera). Yugaku-sha Limited. viii + 447 pages, 869 text figures, plates I–IV (colored), plates V–XXXVI (black and white). Distributed by Keigaku Publishing Company Limited, 3–1, 2–chrome Sarugaku-cho, Chiyoda-ku, Tokyo, Japan.

Eleven years ago, the entomological literature was enriched by publication of a volume on the truncatipenne Carabidae of Japan. Five years ago, the same author produced the Harpalini of Japan, and I had the pleasure of reviewing it (Ball, 1973, *Quaestiones Entomologicae*, IX: 263–264). This year the third volume by the same author in this remarkable series on Japanese Carabidae appeared. I examined the copy, graciously sent to me by Akinobu Habu, anticipating that a major contribution to knowledge of platynines (agonines of some recent authors) was at hand. I was not disappointed.

This volume describes in English the platynine fauna of Japan, including adults of 140 species arrayed in 15 genera and three subtribes. A list of larvae of five species is presented – evidently the only platynine species for which this life stage has been studied in Japan.

As with the previous volumes, means of identification are provided by keys to adults of all taxa, by illustrations of habitus (26 plates), by good descriptions, and by text figures which illustrate various structures including mouthparts, antennae, legs, ovipositors, and male genitalia. General distribution of each species and type localities of new species are indicated. For genera and subgenera, type species are listed. Synonymies and abbreviated literature citations are presented in the text, and complete citations are in the “Literature” section. An index to scientific and vernacular names follows the text.

The illustrations are excellent, and I take pleasure in commending again the superb work of Mr. T. Sekiguchi, who also prepared the color plates for the previous volumes. Habu is responsible for the line drawings and black and white habitus illustrations. These are also of very high quality. Again, I must point out the desirability of providing scale lines or some other indication of size of the figured insects. Paper, printing, and binding are of the same high quality characteristic of previous volumes of “Fauna Japonica”. I noted that the text of the volume on Harpalini was marred by errors which might have been eliminated by an editor whose native language was English. I did not find such errors in the present volume.

The taxonomic treatment seems sound. It is based on a more detailed appraisal of the character systems used for identification than any previously published revisions of other local platynine faunas. Geographical variation is not given prominence, though it is described for a few species. Nor is any special note made of geographical relations that might be of use in understanding phylogenetic relationships between species. Also lacking for most species are statements about altitudinal range, and state of wings (*i.e.*, fully developed and functional, or reduced). Without this information, a zoogeographer cannot interpret the data on the species in the detail which would otherwise be possible.

For more than 30 years, Habu has published short papers on the Japanese platynines. This is reflected by the fact that only seven new species are described in this volume. However, 19 new subgenera are described. This suggests that as the species were assembled for a general treatment, the author discovered groupings that had not been suspected previously, or that seemed more appropriately formalized for this synthesis.

Several aspects of Habu's treatment of Japanese platynines are of interest to carabid specialists generally: naming and ranking of the platynine assemblage; the subtribes and their definition; and ranking at the generic and subgeneric levels. Although most recent authors have used the name *Agonini* for this group, Habu (1973, *Ent. Rev. Japan* 25: 28–36) established that the correct name is *Platynini*, and there seems to be no reason why this name should not be used. Ranking is another matter. Lindroth (1966, *Opusc. Ent., Supplementum* 29: 441) included agonines (=platynines) in the *Pterostichini*, as four subtribes: *Agoni*, *Pristosiae*, *Sphodri*, and *Synuchi*. Various recent workers have accepted this arrangement: for example, Whitehead and Ball (1975, *Quaest. Ent.*, 11: 591–619); Freude (1976, in *Die Käfer Mitteleuropas*, 2: 7); Erwin, Whitehead, and Ball (1977, in Blackwelder and Arnett, Checklist of the beetles . . . *etc.*); and Reichardt (1977, *Quaest. Ent.*, 13: 406). It would be interesting to know if Habu keeps platynines isolated from pterostichines for traditional reasons, or because he does not believe that the two complexes are closely enough related to be included in a single tribe.

In contrast to Lindroth, Habu arranges platynines in only three groups, based on form and setation of the ovipositor stylus: *Platynina*, *Sphodrina*, and *Dolichina*. *Platynina* is the same as Lindroth's *Agoni*. The *Sphodrina* includes most of the *Sphodri* of Lindroth plus the *Pristosiae*. The *Dolichina* includes Lindroth's *Synuchi* plus *Dolichus* Bonelli. Composition of the *Dolichina* poses an interesting problem. The genus *Dolichus* (ranked as a subgenus by Lindroth, 1956, *Trans. R. Ent. Soc. London*, 108: 533) is characterized by male genitalia typical of *Calathus* Bonelli (subtribe *Sphodrina*), but setation of the ovipositor stylus is like that of synuchines. Obviously, Habu weights more heavily female structures in deciding on placement of platynine taxa. However, he neglects to advise his readers about the basis for this weighting. Nonetheless, I think the focus of attention must be on two aspects: first that the ovipositor contains characters that are useful in grouping platynine genera; and second, that relationships of the sphodrine-dolichine-synuchine complex remain to be resolved, unless one is prepared to arbitrarily weight characters.

At the generic level, Habu's treatment is basically conservative. The 93 Japanese species of *Platynina* are grouped in nine genera, with 76 species included in *Agonum* Bonelli. Most of the groups excluded from *Agonum* are based on striking structural distinctions. Thus, these less diverse taxa are fairly easily characterized, and seem justified – at least in a phenetic-phyletic framework of classification. However, it would have been useful for North American specialists if Habu had at least commented on the arrangement proposed by Whitehead (1973, *Quaest. Ent.* 9: 175), who recognized *Sericoda* Kirby as a separate genus (included by Habu in *Agonum*), and who proposed a characterization of *Platynus* Bonelli and *Agonum* different from that used by Habu. In fact, it seems that most of the species included in *Platynus* by Whitehead are characterized by external features ascribed to *Agonum* by Habu! Again, the major thrust of

these comments is not to criticize Habu's decisions, but rather to point out a problem. In this connection, it is worth noting that a general system is needed for the genus-group taxa of Platynina that will make possible coordination of the genus-group taxa for the world. For example, it seems clear that the genera that Darlington (1952, *Bull. Mus. Comp. Zool.* 107: 89–252) recognized for the New Guinea fauna are less inclusive than are the genera recognized by Lindroth, Whitehead, and Habu.

Least satisfactory, I think, is Habu's ranking of the synuchine genera. Lindroth (*op. cit.* p. 493) presented ample evidence for including *Crepidactyla* Motschulsky, *Trephionus* Bates, and *Synuchus* Gyllenhal in a single genus, named *Synuchus*. Habu rejects this arrangement, but does not give reasons. Nor are reasons given for continuing to recognize *Parabroscus* Lindroth as generically distinct. I suspect that all of these groups are best regarded as subgenera of a single genus. However, regardless of the system of ranking, an author should feel obliged to explain the basis for decisions taken. Incidentally, an evolutionary study of the Japanese synuchines would be most interesting and highly rewarding.

At the subgeneric level in the more diverse genera (*Synuchus*, and especially *Agonum*) Habu seems to have split excessively, or perhaps to have simply over-ranked species groups. For example, he includes the 76 Japanese species of *Agonum* in 27 subgenera, yielding an average of 2.8 species per subgenus. He arrays the subgenera in four groups that are quite clearly distinguished from one another. It would seem to me that these groups might have been ranked at the subgeneric level, with the included subgenera ranked down, accordingly.

Only for the subgeneric groups of *Agonum* does Habu refer explicitly to evolutionary considerations, suggesting that the *Agonum* group is ancestral to the *Metacolpodes* group, with the latter ancestral to the *Eucolpodes* and *Loxocrepis* groups. This is based on the pattern of variation of tarsomere 4 of the hind tarsus, which in turn is correlated with development of arboreal habits of adults.

I will not resist the temptation to comment on the nature of the Japanese platynine fauna as I perceive it, in terms of Habu's classification. Above all, the fauna is characterized by endemism: 76 per cent of the species are known only from the Japanese and nearby archipelagos. It is a fascinating mixture of tropical and temperate elements, and reminds a systematist of New World carabids of the Mexican fauna, rather than of the platynine fauna to the north of Mexico. For example, in both Japan and Mexico, the Platynina are represented by many arboreal foliage-inhabiting species, as well as by arboreal corticolous species, terrestrial species, and troglobitic species. In North America, on the other hand, the foliage-inhabiting element is not represented. The sphodrine-synuchine complex is moderately diverse, though in Mexico it is represented principally by the sphodrine group *Calathus* Bonelli, whereas in Japan the dominant element is the synuchine genus *Synuchus* and its less diverse satellites. In the north, on the other hand, the sphodrine-synuchine complex is relatively impoverished, being represented by a few species. Regrettably, the data are not available to comment on altitudinal aspects of distribution of the Japanese platynines, and I do not have time to undertake an island-by-island analysis of the fauna. This would be a rewarding exercise.

This volume, then, is of use not only to Japanese workers who wish to make identifications, but also to carabid specialists who are interested in classification of platynines generally, and to evolutionists who might be seeking moderately diverse groups whose members are characterized by structural and distributional features that are interpretable in ecological terms.

Following the Preface is a note that 200 years ago, Carolus Linnaeus died, and that this book is commemorative of that event. I find this simple statement moving, for it reminds us that science is not constrained by time and nationality—rather it transcends these seemingly important attributes of day to day existence. The bonds of common interest extend across continents and through time to link individuals in their quests for understanding of nature. And it is fitting that such a remarkable book as this should draw our attention to one of the most remarkable systematists of all time.

George E. Ball