

*amyntula* bears little resemblance to the figure of BOISDUVAL's type given years ago by OBERTHÜR, which apparently represents the large, dark, lowland California population.

The range of the boreal "*amyntula*" is much more extensive than given, reaching northward to Alaska and the Mackenzie Delta region and eastward to the Gaspé Peninsula.

*Celastrina argiolus* (p. 176). Several recent authors, whom BROWN and his co-authors have apparently followed, have referred North American *pseudargiolus* to the Palearctic *argiolus* as a subspecies. In the absence of careful and extensive genitalic studies (which have not, to my knowledge, been published or even made), this seems unwarranted. North American representatives of the genus were undoubtedly derived from Asia via Alaska and the Bering Straits route, in the more or less remote past (possibly as late as mid-Pleistocene but not later). In Asia there are several very closely allied species among which *argiolus* is no more likely a candidate for "nearest relative" than others. These were reviewed by FORSTER (*Mitt. Münch. Ent. Ges.* 31: 593-627, 9 text figs., pls. 19-22, 1941), whose paper I have drawn on for much of the information given here. Further, the easternmost Palearctic representatives of *argiolus* form a group of subspecies (the *ladonides* group, in Japan, China, and the Himalaya) almost specifically distinct from the European and other western *argiolus* races (*argiolus* group), though annectant subspecies are known. In view of the uncertainty that exists regarding which of the Asiatic species of *Celastrina* is nearest to *pseudargiolus*, as well as the confused and poorly understood taxonomy of *pseudargiolus* itself (e.g., the distinct possibility, still uninvestigated, that more than one species occurs in North America), it is much wiser to keep the North American forms as a species distinct from *argiolus*. Some years ago (*Journ. N. Y. Ent. Soc.* 52: 273, 1944) I described the Colorado subspecies of *pseudargiolus* as new (ssp. *sidara*), so there is an available name for them, of which the authors seem unaware. This step of mine was premature and ill-advised, in view of both the very insufficient material at my disposal then and a failure to consider the whole *pseudargiolus* complex together. Though I believe the name to be valid, "if I had it to do over again" I should have left it for a more thorough survey of the species as a whole.

This review cannot better be concluded than by stating that the purposes of its authors are more than fulfilled. The work will have a wide appeal — to amateur and professional, tyro and seasoned collector, dilettante and enthusiast; there is something of value for each. The impression is strong that one could visit Colorado for the first time and, accompanied by the *Colorado Butterflies*, efficiently look for and (barring the whims of Nature) find almost any species mentioned, able as well to give it its correct name.

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*THE BUTTERFLIES OF THE MALAY PENINSULA.* By A. Steven Corbet and H. M. Pendlebury (2nd Edition, revised by A. Steven Corbet, edited by N. D. Riley). 568 pp., 55 plates (8 color, 26 half-tone, 21 line), 159 text figures. Publisher: Oliver & Boyd, 39a Welbeck St., London, W. 1, England [Price, bound, £5. 5. 0 net (\$14.70)].

It seems hardly fair, either to the late authors or to the book itself, to label this as merely a revised edition of the first *Butterflies of the Malay Peninsula*. In every respect it is a new book, so different and so much improved that, useful though the earlier effort was, the present one far outstrips it and has every right to stand on its own. It is a final, fitting monument to its two capable and energetic authors, neither of whom survived to see it published.

The book is divided into three parts: part I of about 86 pages in ten chapters discusses generalities; part II is the dominant portion of the work, the discussion of

the species; and part III includes a variety of lists — a synonymic list of all the Malay Peninsula butterflies, a list of annotations on some of these, a tabular census of numbers of species and races known, a list of food plants, a large and valuable bibliography, three indices (general, scientific names, common names).

This volume will be indispensable to anyone having to do with the Malayan butterflies; and collectors in few regions of the earth, not excepting Europe and North America, can claim a better or more useful one. Keys to families, subfamilies, genera and species provide a thorough basis for identification, supplemented in most cases by description, figures and genitalic drawings. These last, over 300 in number, fill 21 plates and are an especially valuable feature of the work.

The beginner will find in the introductory part useful discussions of butterfly anatomy, classification, collecting and preserving techniques (with special reference to tropical conditions). The account of genetics (which, oddly, is termed "Mendelism") is poor — confusing and in places inaccurate — but if it serves to stimulate resident collectors to try breeding experiments it will have fulfilled its major purpose. It is remarkable, however, that this very competent taxonomic work should have a substandard account of genetics, quite as remarkable as the inaccurate and unsympathetic treatment of taxonomy in E. B. FORD's genetically highly competent book, *Moths*. One cannot help suspecting that in England there is a rift between taxonomists and geneticists of sizeable proportions.

Throughout the work there is a strong emphasis on zoogeography. This begins in the introductory portion with an excellent exposition of the geography, climate and major ecologic features of Malaya, illustrated by several maps, as well as an account of the major zoogeographical regions of the earth and, in more detail, of Malaysia (again, with maps). It should be said, however, that if the Oriental and Australian regions are accepted, as indeed they should be, then the Neotropical and Nearctic should never be lumped as subregions of a single "American" region as they surprisingly have it.

To one familiar with New World butterflies there is a striking resemblance between butterfly distribution in Malaysia and that in Florida and the West Indies. Java, with its somewhat less rich but proportionately more strongly endemic fauna, is comparable to Jamaica; Sumatra and Borneo resemble, both in their physical relationships and in their endemism and comparative richness, Cuba and Hispaniola respectively; while the Malay Peninsula is, of course, the analogue of Florida, not only as a continental peninsula jutting out towards the islands, but also in the greater resemblance of the butterflies in its lower part to those of the islands rather than to the continental fauna to the north. Such an analogy may not, obviously, be pursued too far. Malaysia, for example, has strong evidence indicating that at least once and probably several times during the Pleistocene it was united into a single large island (Sundaland), of which Malaya was a part, and which itself was probably separated by water from the Asian mainland. There is no evidence of this in the West Indies.

Throughout the systematic portion of the text one finds additional zoogeographic emphasis, in the form of maps and discussions of more unusual distributions, often of far wider significance than Malayan. For example: the African-Asiatic vicariants, *Papilio demodocus-demoleus*; the holotropical *Precis orithya-cænia-lavinia* (though probably vicariants, I very much doubt that the New World forms are conspecific with *orithya*); the holotropical *Hypolimnas misippus* with its presumed introduction into the New World by man indicated; the African-Oriental vicariant pairs *Zizina otis* and *Zizceria knysna* with the very different positions of the geographic division between genitalia types indicated in each; the holotropical range of *Zizula hylax (gaika auctt.)*. The latter, however, is in error in several points: (a) the New World *tulliola* or *cyna* is specifically distinct, with definite pattern and genitalic differences; (b) the Oriental range is much more extensive than shown, the species occurring on Formosa, the Philippines and on many of the islands of Micronesia in addition to the area shown; (c) the American range extends well into Texas and Arizona.

There has been no inquiry into questions of higher classification and the book follows SEITZ in these matters: a reflection on the poor state of our knowledge of butterfly classification. In several places the results are unfortunate, though of comparatively small significance; in the Lycænidæ however, there are numerous serious errors of grouping. The Liphyridæ (whatever rank one may wish to accord it) is a natural group, but its members are here widely scattered: *Miletus*, *Allotinus*, and *Logania* in the "Miletinæ" (erroneously stated to be peculiar to the Oriental region, for the African *Megalopalpus* is a close relative); *Spalgis* and *Taraka* (near relatives of the American *Feniseca*) in the "Lycæninæ"; and *Liphyra* in the Liphyrinæ. Further, the blues and coppers are united into a single subfamily, since the copper genus, *Heliophorus* (the only regional representative of the group) is placed in with the blues. *Hypochrysois*, a true tealine, is likewise grouped with the blues.

I should have preferred to see the synonymic list and the list of annotations which follows it incorporated into the text, though there may have been technical reasons against this. The three separate indices, however, should certainly have been combined into one.

Barring the few difficulties discussed here, and one or two other small points, the book is a magnificent and obviously very painstaking piece of work. And not only the reviewer but also his readers should bear in mind that it is far easier to criticize a work such as this than it is to prepare one!

The book is clearly intended for, and will be most used by, those directly interested in the butterflies of Malaysia. It is, nonetheless, of such competence and so full of a variety of facts hard to find elsewhere that it is heartily recommended to anyone interested in the broader aspects of butterfly study, no matter where he may live or what the scope of his collection might be.

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*FALTER BEI TAG UND NACHT. AUS DEM LEBEN UNSERER SCHMETTERLINGE.* Text by Manfred Koch, pictures by Kurt Herschel. 288 pp., 132 foto-reproductions. 1953. Publisher — Neumann Verlag, Radebeul und Berlin, Germany. [Price, 12 DM.]

The excellent and beautiful reproductions show various European Lepidoptera and caterpillars, all taken free in nature. The captivating text narrates in literary but, however, scientific language the rich experiences the author has to tell from his numerous collecting trips. Every entomologist will enjoy running through these pictures from time to time and can find a stimulus for his own foto essays.

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*WIR BESTIMMEN SCHMETTERLINGE. PART I, TAGFALTER DEUTSCHLANDS* (unter Ausschluss der *Alpengebiete*). By Manfred Koch. 119 pp., 16 col. pls. 1954. Publisher — Neumann Verlag, Radebeul und Berlin, Germany. [Price, 7.80 D.M.]

This small book has important hints for all kinds of lepidopterological activities on the first 66 pages. Then it gives a table of the species, arranged so that it is easy to find for each species the name, locality, when to find the caterpillar, then the imago, what the caterpillar feeds on, abundance, remarks (sometimes very interesting). Then follow indices and 13 colored plates of 140 species, all from color-slides, very lively and natural, where necessary above and beneath, arranged like a collection, and this is new and surprising, in horizontal lines, species after species according to the system used by SEITZ and giving thus an excellent arrangement for studying relationships and making comparisons. I think it is the first time the subject has been presented in that manner. Then follow 3 colored plates with the caterpillars of the 140 species and most of the pupæ, in the same exceptionally good reproduction. Only 119 pages, but all the important things are said. There will be second and third parts dealing with the Heterocera.

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