

are composed, and the sheath of fleshy matter or corium with which each is surrounded. The existence of this sheath, which is of the same structure and substance as the inner layer of the bark, I have always regarded as a proof that the spicules were formed by the community of *Palythoa* that compose the bark or corium.

The long free filamentous spicules of the *Euplectella*, which are regarded by Dr. Max Schultze and Prof. Wyville Thomson as most resembling in form the spicules of the axis of the *Hyalonema*, have an acute simple tip, or have the tip armed with three or more recurved hooks, as figured by Bowerbank. It is curious how Dr. Max Schultze, who has figured the peculiar structure of the spicules of *Hyalonema*, and must have seen the spicules of the *Euplectella* furnished with hooks, could have thought of uniting the two genera into a group, which he called *Lophiospongia*; for nothing can be more distinct than the structure, form, and use of the spicules of these two genera belonging to orders of animals of such different degrees of organization.

BIBLIOGRAPHICAL NOTICES.

Coleoptera Hesperidum, being an enumeration of the Coleopterous Insects of the Cape Verde Archipelago. By T. VERNON WOLLASTON, M.A., F.L.S. 8vo. London: Van Voorst, 1867.

How far Mr. Wollaston is warranted in applying the term Hesperides to the southernmost cluster of the North Atlantic islands is a question which we must leave to the classical student for decision; perhaps they have as good a right to the title as any others. But to the entomologist, since the publication of the book whose title is given above, the Hesperides will most certainly be identified with the Cape Verde Islands, seeing that Mr. Wollaston's visit to them has enabled him to present his brother entomologists with a treasure of higher value than any amount of golden apples ever guarded by the most terrible of dragons.

The materials for the 'Coleoptera Hesperidum' have been chiefly collected by Mr. Wollaston himself, during a visit to the little archipelago in Mr. Gray's yacht. Mr. Gray, Mr. Hamlet Clark, and Mr. Lowe had also previously landed on some of the islands; and Mr. Wollaston acknowledges the receipt of specimens from some other gentlemen; but the arid nature of the group, in some of the islands of which rain scarcely ever falls, renders the most careful working unproductive, and accordingly the whole number of species obtained from all sources amounts only to 278. This number might perhaps be slightly increased by an investigation of the three eastern islands of the group, which Mr. Wollaston did not visit; but the very name of "Salt Islands" applied to these seems to indicate that pro-

bably no great results would be obtained from them. The materials at Mr. Wollaston's disposal were, however, sufficient to bring out some very interesting results.

The first of these is, that the relative proportions of the different great groups of Coleoptera in these remote islands is nearly the same as in the more fruitful regions of the Madeiran and Canarian groups, with the exception that the Heteromera and Rhynchophora exactly change places in the series, and that the Eucerata (Longicorns) are, as far as our author is aware, entirely unrepresented. The comparative inferiority of the Rhynchophora may perhaps be due, as Mr. Wollaston seems to think, to the improvident destruction of the timber by the inhabitants; and the same cause would also, to a great extent, account for the absence of the Longicorn Beetles. Considering the arid nature of the islands, it is a little remarkable that whilst the Philhydrida and Hydradephaga hold the same relative position in the numerical scale, their actual proportion to the whole number of species is greater in the Cape Verde than in the more northern islands; for we have 7 Hydradephaga and 6 water-loving Philhydrida in the former, against 29 and 20 in the latter, the totals being about in the proportion of 28 to 145.

Nor is it only in these statistical results that the two sets of islands, which Mr. Wollaston has subjected to examination, agree; even the exponents of Coleopterous groups, although not very frequently identical, are generally so nearly allied that Mr. Wollaston seems to think that it would be most natural to regard the fauna of all the islands as forming a whole, differing in certain details in the more distant islands, but characterized throughout by a similarity of type. Thus, although the predominance of Heteromera would seem at first sight to indicate that nearer African relationship which might be inferred from the position of the islands, we find on inspection of the list that the types are, for the most part, like those of the more northern islands. It is to be observed, however, that, notwithstanding this similarity of the types which are represented in the Cape Verdes to those prevailing in the more northern clusters, Mr. Wollaston remarks upon the total absence in the former of types highly characteristic of the latter. This, however, as he points out, is probably the result of distance, assisted perhaps by the breaking up of the province into such a number of small islands.

Of truly tropical forms Mr. Wollaston enumerates only three, namely, *Dineutus æreus*, *Diplognatha gagates*, and *Aspidomorpha cincta*.

Of the species enumerated by Mr. Wollaston a great number seem to occupy the same position in relation to other known species which characterized so many of those catalogued by him in his former work; that is to say, they differ so slightly that, but for the difference of habitat, they would perhaps hardly be regarded as species. All these are carefully indicated by Mr. Wollaston in his geographical table by means of arrows leading to the name of the probable derivative species; and it will be a task for some Darwinist hereafter to work carefully over Mr. Wollaston's indications of this

nature, and to see whether any real material towards the final solution of the great question of the origin of species can be derived therefrom. Mr. Wollaston, in accordance with his known views, holds that these changes (if such have taken place) will have been effected *rapidly*. Whatever conclusion may be arrived at upon this subject, no one will doubt that in his present work and its companion, the 'Coleoptera Atlantidum,' Mr. Wollaston has furnished a most important contribution to philosophical zoology.

Naturhistorisk Tidsskrift (Journal of Natural History), edited by Professor J. C. SCHIÖDTE, at Copenhagen. Third Series, vols. iii. & iv. (1865-1867), 568 pages with 15 plates, and 552 pages with 22 plates.

J. C. SCHIÖDTE on Phthiriasis; on the genus *Stalita*; on the Classification of *Buprestes* and *Elateres*; on some Tunnelling Coleoptera; on the Structure of the Mouth in Sucking Crustacea, and on the Metamorphoses of Coleoptera.—Dr. R. BERGH, Contributions to a Monograph of Pleurophyllididæ.—Dr. V. BERGSÖE on *Philichthys Xiphie*, St.; on the Italian *Tarantula* and Tarantism.—Dr. BERGSÖE and Dr. MEINERT on the Danish Species of *Geophili*.—Dr. MEINERT on Campodæ; on *Miastor metraloas* (three articles).—M. FISCHER on the Egg of *Caryocatactes guttatus*; on *Larus Rossii* and on *Syrnhaptes paradoxus*.—M. STRÖM on the Danish Species of *Orgyia*; List of Danish Lepidoptera.

THE third and fourth volumes of this periodical, which have just been completed, are in every way worthy of their predecessors, which were noticed in the 'Annals' (ser. 3. vol. xv. p. 475). They consist entirely of original papers by Danish naturalists, and are admirably illustrated by engraved plates. Several of the papers above mentioned have been translated or excerpted in English or other continental periodicals. Prof. Schiödte's papers on Phthiriasis, *Elateres* and *Buprestes*, tunnelling Coleoptera, and sucking Crustacea have been translated in the 'Annals,' as well as Dr. Meinert's papers on Campodæ and his observations on those remarkable larvæ of Cecidomyiæ which exhibit alternating generations, and on generation generally; whilst M. Fischer's discovery of the true egg and nest of *Caryocatactes* has been communicated to English ornithologists through the 'Ibis.' But there remain several papers well worthy of attention.

The volumes before us contain two further instalments (vol. iii. p. 131, and vol. iv. p. 415) of Prof. Schiödte's memoir "De Metamorphosi Eleutheratorum Observationes," which has now grown up to 279 pages of text and 31 plates, and is still being continued. The larvæ as yet described amount to 100, belonging to 57 genera of the families of Carabi, Dytisci, Gyrini, Hydrophili, Silphæ, Histri, and Staphylini, and representing the principal groups of these families, except the last, which is not yet completed. A few of these larvæ have been described before, but mostly in loose and general terms; and it may well be said that never have the larvæ of any insects been the subject of such complete and accurate investigation