

clusion that this was the natural function, or at all events one of the functions, of those organs, and doubted whether the wings could be expanded without the use of the appendages.

Prof. Westwood was inclined to think that the appendages were more ornamental than useful, and that their use, if any, was rather for the purpose of defence.

Mr. S. H. Scudder, Sec. Nat. Hist. Soc. of Boston, U. S. A. (who was present as a visitor), exhibited two fossil specimens (one the reverse of the other) of a gigantic Ephemera, which must have measured five inches in expanse of wings. This with some other fossil insects had been found by Mr. Hartt in the Devonian series of North America, in a ledge of rocks which ran out to sea, so that they could be examined only at low tide; and respecting them Mr. Scudder read the following note:—

“ *On the Devonian Insects of New Brunswick.*—There are in all ten specimens in Mr. Hartt’s most interesting collection of the fossil remains of insect-wings from Lancaster, eight of which are reverses of one another, thus reducing the number to six individuals; of these, one, a mere fragment, belongs, I think, to the same species as another of which the more important parts of the wing are preserved, so that we have five species represented among these Devonian insects, and these remains are all, I suspect, composed of portions of the anterior wing alone. The data being thus fragmentary, the conclusions cannot be quite so satisfactorily determined as we could wish, but we can still discover enough to prove that they are of unwonted interest. Besides the peculiar interest which attaches to them as the earliest known traces of insect life on the globe, there is very much in themselves to attract and merit our closest attention. One of them is a gigantic representative of the family of Ephemerina among Neuroptera, some three or four times the size of the largest species now living, with which I am acquainted. Another borrows some striking points of the peculiar wing-structure of the Neuropterous family Odonata, and combines with them those of families remote from that, and even belonging to a distinct section of the Neuroptera, exhibiting to our view a synthetic type which combines in one the Pseudo-neuroptera and the Neuroptera, and represents a family distinct from any hitherto known. Other fossil insects, found in carboniferous concretions in Illinois, and described in ‘Silliman’s Journal’ (N. S. xxxvii. 34), which Prof. Dana has kindly allowed me to examine, also belong to hitherto unrecognized families, exhibiting similar relations to these in-our-day-disconnected sections of Neuropterous insects; and a third species of Mr. Hartt’s is a member of still another family of Neuroptera, which finds its natural relations between the two described by Prof. Dana. A fourth, of which only an unimportant fragment was found, would seem to belong to the Neuroptera; but by some peculiarities of the minuter cross-veins, thrown off in the middle of the outer edge of the wing, in a most irregular and unusual manner, suggests no intimate relations with any known family, but must have belonged to a group of large and weak-winged insects. The fifth and last to be mentioned is of very striking interest, because, while it exhibits the peculiar venation which forms the well-known tympanum or stridulating apparatus of the male, in the Orthopterous family Locustariæ (though differing somewhat from that), it also most resembles the Neuroptera in all or nearly all the other peculiarities of its structure, and suggests the presence in the insect-faunæ of those ancient times of a synthetic type, which united the characteristics of the Orthoptera and Neuroptera, in themselves closely allied: this point, however, requires patient and severe investigation, and only my earliest



impressions are here recorded,—made, however, immediately after a close examination into the relations of other fossil insects. I earnestly hope that this locality, from which these remains were disinterred, may receive a most careful and thorough examination. Hitherto the study of fossil insects has been mainly confined to those of much more recent date, and has resulted in shedding comparatively little light upon geological and palæontological questions; but these few remains, coupled with the pair of insects found in Illinois, induce us ardently to anticipate that the future study of fossil insects, drawn from such ancient strata as these, may lead to as brilliant and important results, in the elucidation of geological problems still open, in widening the range of our palæontological horizon, and in our general knowledge of the history of life on our globe in all its bearings, as have been reached by the study of the remains of animals of a more substantial structure, but which have hitherto been denied to the student of fossil Entomology.”

Prof. Westwood mentioned that at the recent Meeting of the British Association, Prof. Grube had exhibited a fossil spider from the coal measures, which was perhaps identical with one figured in Petiver’s ‘Gazophylacium.’

Mr. Scudder mentioned that in the Brodie collection were fossil forms very much resembling some American spiders.

Mr. C. A. Wilson, of Adelaide, communicated another instalment of his notes “On the Buprestidæ of South Australia.”

Prof. Westwood directed attention to M. Henri Deyrolle’s recent work, ‘Description des Buprestides de la Malaisie, recueillis par M. Wallace’; Mr. A. R. Wallace’s collection of Buprestidæ had become the property of Count Mnischev, and M. H. Deyrolle had described no less than 355 species of that family.

The Secretary read the following account, with which he had been furnished, of the recent

*Paris Exhibition of Insects.*—“This curious exhibition has attracted the attention of men of science and agriculturists, but most particularly of those who are interested in the rearing of bees and silk-worms, which naturally occupy the chief places. The collection of bee-hives, some shown in operation, and of other matters connected with the rearing and management of these interesting insects, is considerable, and presents forms, in some instances, strange to English eyes. In addition to the bees themselves are specimens of their products and of the articles into which they enter, such as honey, wax, mead or hydromel, sweetmeats and confectionary. The largest portion of the exhibition, however, was occupied by matters connected with the production of silk. An admirably arranged collection was shown by M. Jules Rieu, of Valréas, in the department of Vaucluse, including the white and yellow cocoons of the Japanese silk-worms, introduced into France in 1863, and extensively bred by M. Rieu; green cocoons also from Japan, introduced in the present year; silk spun from these various cocoons; models of the frames and other materials used in the silk cultivation; and specimens of the insects themselves in the various stages of their existence. M. Guérin-Méneville, M. H. Givélet, and others exhibited numbers of the *Bombyx Cynthia*, and of other worms produced by the crossing of the former with the *Bombyx arrindia*, feeding on the leaves of the *Ailanthus*, and also several chambers containing cocoons and hundreds of enormous moths depositing their eggs. Others show products, preparations and sketches of the *Bombyx yamamai*, a very large green worm that feeds on the oak, and of many other new and curious species. But the *Ailanthus*