

male, I believe, does not survive many hours, as I never caught one in the summer which was not luminous. They fly in swarms, and I have repeatedly taken two or three species in the same swarm. They are most plentiful in gardens, though they are found everywhere. The Chinese ladies catch them and imprison them in a fine gauze net, and wear them in their hair."

Mr. W. F. Evans said that Sir John Barrow's experience was in favour of the luminosity of *Fulgora*.

Mr. Newman remarked that his note on Mr. F. Smith's former statement was confined to that part which referred to the Honduras fire-fly, *i. e.* to *Fulgora laternaria*, not *F. candelaria*. Nothing that had been adduced that evening had any bearing upon the luminosity of *F. laternaria*.

Mr. Bates said that *Fulgora laternaria* was pretty common on the Upper Amazons; he had been aware of Madame Merian's statement, and had observed the insect closely; but he had never found it luminous, and, what was stronger than the negative evidence of any single observer, there was no rumour or idea existing amongst the natives to the effect that it was luminous. The natives were well acquainted with the insect, which was the subject of fables current amongst them; for instance, a tale was told of one of these insects having emerged from the forest and attacked a boat's crew of nine persons, eight of whom were killed by the poisonous creature, and the pilot only escaped by jumping into the river. But though the fly was thus reputed to be venomous, there was no story current of its being luminous. Mr. Bates himself was of opinion that *Fulgora laternaria* was not luminous, and (strange as it might seem) that the Honduras correspondent on whose statement Mr. F. Smith relied had attributed to the *Fulgora* what, in fact, was the luminosity of a *Pyrophorus*.

Mr. Newman (on behalf of Mr. Butler, who was present as a visitor) exhibited a number of insects embedded in amber and gum-animé differing from those of which an account was given by Hope in the first and second volumes of the Society's 'Transactions.' The amber was from the Baltic, the gum-animé (which, by the bye, was a resin, not a gum) from the East Indies; one of the amber-insects was peculiar from having enclosed with it a globule of air and a globule of water.

The President exhibited several new Australian Longicornia, presented to him by Mr. F. G. Waterhouse, of Adelaide, some of which were taken by that gentleman during the recent exploring expedition under Stuart; among the more interesting was a new genus, in some respects connecting those remarkable and isolated forms *Bimia* and *Hesthesis*. Also a considerable number of new species from Gawler, near Adelaide, part of a large collection for which he was indebted to Mrs. Kruesler and Mr. Odewahn; one of these had the appearance of a Malacoderm, for which, at the first glance, it might very readily be taken. It might, in fact, be regarded as another case of "mimetic resemblance"; but if so, there was this peculiarity about it, that the stronger insect was here imitating the weaker, which seemed not quite consistent with the theory that the imitated form was copied with a view to the protection of the imitating.

Mr. A. R. Wallace said that the case was quite consistent with the theory of mimetic resemblances, and that that theory did not depend upon the relative strength or weakness of the imitated or imitating forms; an insect might be very weak in structure, and yet be a proper subject for mimicry; many insects of weak structure were extremely abundant, were, in fact, dominant species; such species no doubt possessed some protection against their enemies with which we were unacquainted,

and of which other species of stronger structure were deprived; and having that protection, whatever it might be, they were on that account fit and likely subjects for imitation. So far from conflicting with the theory, he felt no surprise whatever at finding a structurally-stronger insect mimicking a Malacoderm.

The President also exhibited diagrams of the under surface of the abdomen of the females of *Obrium cantharinum* and other Longicornia, showing the presence of large lumps or tufts of hair on particular segments; he was anxious to ascertain whether such a structure was invariably present in the female; he had reason to believe that in some Australian genera (*Penthea* and *Symphyletes*) it was not invariably present, but further observation was required. If it should prove that it was not invariably present in the female, this would furnish another instance of "dimorphism," by which he (Mr. Pascoe) meant a case where there was an addition to or alteration of a part or organ; the term, in his opinion, ought to be confined to such a phenomenon, and was not applicable to simple variation, such, *e.g.*, as variation in colour.

Mr. A. R. Wallace exhibited specimens of *Papilio Memnon*, *P. Pammon*, *P. Theus*, *P. Ormenus*, *P. Erectheus* and *P. Tydeus*, for the purpose of illustrating his views on "polymorphism." Mr. Wallace remarked that he did not apply the term "dimorphism" to simple variation; on the contrary, he regarded "polymorphism," of which "dimorphism" was but the first and least complicated stage, as a totally different phenomenon from "variation," and one which required a separate name. Under the common term "variety" many distinct phenomena were confounded; he proposed to confine that term to those cases in which there was indefiniteness and irregularity in the variation. "Variation," then, was an indefinite and inconstant phenomenon, the instances of which passed from one to the other by irregular, often by insensible, gradations; "polymorphism," on the other hand, consisted in the existence of several distinct forms of the same insect which do not graduate into each other. Thus, in *Papilio Memnon*, the male was in each locality constant; it had rounded hind wings, and was always nearly black, with a few ashy rays; the female, however, existed under two distinct forms; the first had the wings shaped like those of the male, but had a very different colouration, being more or less olive-coloured, and often banded on the hind wings with whitish yellow, and with marginal black spots; the second form of female differed remarkably from the first, the hind wings being produced into a large spatulate tail, and marked with white patches radiating from the base. Both these forms exhibited varieties in the same locality, but there were no connecting links between them. The males paired with both forms of female, and in each case the resulting brood assumed the distinct forms above described. This was a case of dimorphism. *Papilio Pammon* was a parallel case; there was a form of female resembling the male, and there was a second aberrant form of female, *viz.* the form which had been called *P. Polytes*: he believed that *P. Romulus* would prove to be a third form of the female of *P. Pammon*, though of this he had not evidence at present; but the male of *P. Romulus* had never been found, whilst the females occurred along with *P. Pammon* in every collection from India: if that were so, then *P. Pammon* would exhibit an instance of trimorphism. *P. Ormenus* was certainly trimorphic, for three distinct forms of female were found, all differing greatly from the male; and Mr. Wallace had reason to believe that to some males of *Papilio* as many as four distinct wives must be assigned. These forms had hitherto been classed as varieties, but the physiological differences presented by them were striking.

Mr. Wallace further distinguished between a "variety" and a "local form" or

"race," denoting by the latter term a form which kept distinct from the parent stock and propagated itself independently: such a form was not a "variety" by reason of its constancy and the absence of intermediate links, and could not be considered a "species" by reason of the comparative unimportance of the characters in which it differed from the type-form. The subject of Mr. Wallace's remarks had been treated by him at length in a paper recently read before the Linnean Society: he further illustrated the phenomenon of polymorphism by the following hypothetical case:—Imagine the discovery of an island inhabited by white men, and black (negro), red (Indian), and yellow (Chinese) women, and in which the union of these variously-coloured parents produces children which always resemble one or other of the four above-mentioned forms, no intermediate forms ever occurring; the boys are always white, whilst the girls are black, red or yellow, but without any necessary connexion with the colour of the mother, so that a black girl may be the offspring of a white father and of either a black, red or yellow mother. Such a phenomenon would certainly be an extraordinary one, but it was exactly parallel to what took place with the exhibited species of *Papilio*.

Gen. Sir John Hearsey remarked that so long ago as 1831 he had captured *Papilio Pammon* and *P. Polytes in copulâ*, had killed the pair *in situ*, and so sent them to Prof. Westwood; in which position they were to be seen at Oxford to this day.

Mr. Waterhouse enquired whether there was any evidence of the fertility of the abnormal females, since on theoretical grounds it might almost be expected that they would be unproductive.

Mr. Wallace replied that he believed one of the abnormal females then exhibited could be seen to be full of eggs.

Prof. Westwood exhibited a butterfly recently received at the Oxford Museum from M. Snellen van Vollenhoven; the specimen was from Ceram, and it appeared to him to differ from *Papilio Peranthus* only in its large size and to some extent in its colouring; he found no structural difference whatever, and he begged to exhibit it as *P. Peranthus, var.*; it seemed to him to be precisely one of Mr. Wallace's "local forms," but Mr. Wallace informed him that *he* should describe it as a new species.

Mr. A. R. Wallace said that if structural difference was necessary to constitute a species, two-thirds, or probably nine-tenths, of the existing species must be abolished; the difference between a local form and a species was one of degree only, and in his opinion the butterfly exhibited possessed characters sufficient to entitle it to specific rank.

Prof. Westwood read the following descriptions of two new species of Phasmidæ:—

*HETEROPTERYX HOPEI, Westw.*

Lata, subdepressa, mesothorace conico; fulvo-lutea (viridis? dum viva), tegminibus opacis, pallide stramineis; spinulosa, spinis parvis, capitis vertice spinis octo coronato, mesonoto in medio partis posticæ spinis duabus minutis armato; parte detecta supera oviductus segmento nono dorsali abdominis fere duplo longiori, elongato-lanceolata, angusta, sensim ad apicem attenuata, apice ipso furcato. (Fœmina.)

Long. corp. lin. 6; prothor. lin. 7; mesothor. lin. 9½; metathor. lin. 9; abdom. segm. 6 basal. lin. 27; segm. 3 apic. lin. 11; oviduct. lin. 6 = long. tot. circ. unc. 6½.

In Mus. Hopeiano Oxoniæ (Coll. Bell). Habitat ———?

Closely allied to *H. Grayii*, but much larger, though with the spines much smaller;